CURTIS'S

BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN;

WITH SUITABLE DESCRIPTIONS;

BY

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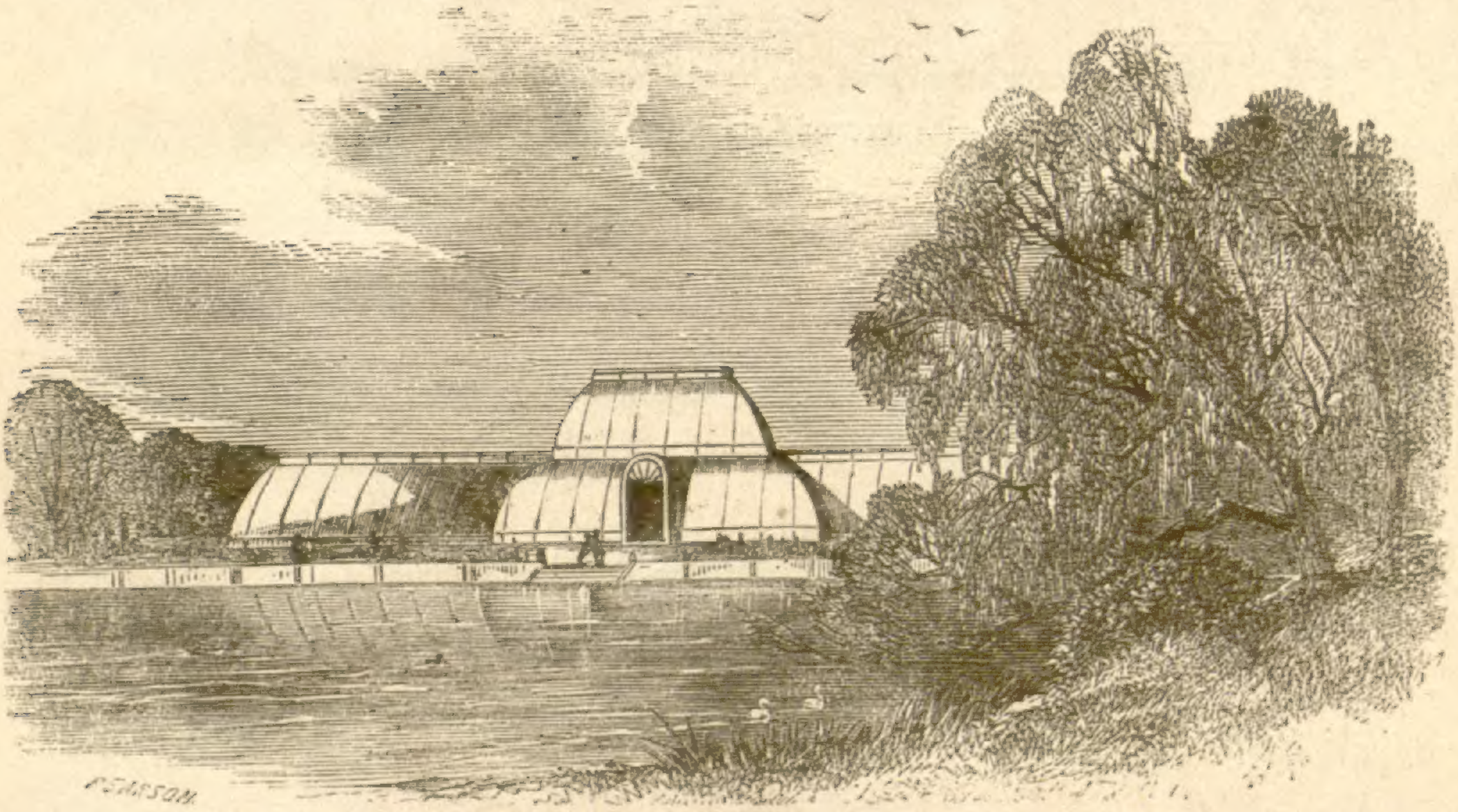

He spake of plants, divine and strange,
That every hour their blossoms change,
Ten thousand lovely hues!
With budding, fading, faded flowers,
They stand, the wonder of the bowers,
From morn to evening dews.—WORDSWORTH.

LONDON:
L. REEVE & CO., 5, HENRIETTA STREET, COVENT GARDEN,
1872.

Mo. Bot. Garden,
1897.

SHOUT
SHARE
IT

LONDON:
SAVILL, EDWARDS AND CO., PRINTERS, CHANDOS STREET,
COVENT GARDEN.

TO

JOHN HUTTON BALFOUR, M.D., F.R.S.,

PROFESSOR OF BOTANY IN THE UNIVERSITY OF EDINBURGH, ETC.

MY DEAR BALFOUR,

To no one is the dedication of a volume of the "BOTANICAL MAGAZINE" more prominently due than to yourself, whether as the distinguished head of the greatest botanical school in this kingdom, or as the Director of a Garden which has long been most eminent, both in a Botanical and a Horticultural point of view, and which has moreover contributed so much to the value and interest of this work.

To these motives, let me add the uninterrupted friendship which I have enjoyed ever since we together commenced our botanical careers, now nearly forty years ago.

Believe me ever,

Very sincerely yours,

JOS. D. HOOKER.

ROYAL GARDENS, KEW,
Dec. 1*st*, 1872.

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W. Fitch del. et lith.

Vincent Brooks Day & Son, Imp

Tab. 5943.

MACROZAMIA CORALLIPES.

Native of New South Wales.

Nat. Ord. Cycadeæ.

Genus Macrozamia, *Miquel; (Prod. Syst. Cycad.*, p. 8 & 18).

Macrozamia *corallipes;* caule subsphærico, foliis suberectis tortis rigidis linearibus pinnatis, petiolo inermi compresso, pinnis strictis distantibus erecto-patentibus anguste lineari-lanceolatis acuminatis integerrimis luride viridibus in petiolulum brevem basi tumidum corallinum angustatis, strobilis glaucis, masculo cylindraceo 6-8-pollicari, squamis rhombeis basilaribus muticis mediis mucronatis superioribus calcare suberecto rigido ornatis, pollinis loculis globosis perplurimis superficem totam inferiorem squamæ cuneiformis tegentibus, strobil femineo fructifero pedunculo breviore crassiore late ovoideo 4–5 poll. longo, squamis pedicellatis vertice incrassato et dilatato 1½ poll. lato, inferiorum in apicibus acutis, superiorum longe acuminatis, summorum in calcar erectum productis, seminibus globosis rubro-aurantiacis.

It has rarely been the good fortune of the Editor of the *Botanical Magazine*, to be enabled to represent a new and remarkable Cycadeous plant in both flowering and fruiting condition; such, however, is now the case, thanks to Mr. Bull, F.L.S., who imported the subject of the accompanying plate from New South Wales, and brought two specimens of it to such high condition that both male and female cones were produced during the present year, and within a few weeks of one another. Unfortunately the male cones ripened so long before the female were in good condition, that fertilization was not possible by these. Mr. Bull has, however, used the pollen of *Macrozamia spiralis* for this purpose, and fully formed seeds have been produced, but it remains to be seen whether these contain an embryo, or only albumen; it being a well-known fact that *Cycadeæ* freely form, without fecundation, seeds which are to all appearance perfect, but

which have no trace of embryo. The genus *Macrozamia* is confined to Australia, where it inhabits both the tropical and temperate zones, extending to the Swan River settlement in the extreme south-west of the continent. Six species are cultivated at Kew: *M. spiralis, Frazeri, Preissii, Macleayi, Macdonellii,* and *Paulo Guilielmi,* to none of which does this bear any resemblance at all, nor does it coincide with the characters of the two other species, described in Miquel's monograph of the order: *M. Peroffkyana,* and *Oldfieldii.*

Descr. *Trunk* subspherical, with a truncate base, eight inches in diameter. *Leaves* six to ten inches, forming a very contracted crown, diverging below, then suberect, rigid, twisted and flexuous, linear, pinnate; petiole deep green, smooth but not polished, reddish-brown towards the base, where it is slightly and bluntly 2-edged; pinnæ about fifty pairs, opposite and alternate, five to seven inches long, one-third inch broad, very narrow linear-lanceolate, acute but hardly pungent, base contracted, nearly three-fourths of an inch apart in the middle of the rachis, closer above, more distant below, the lower not shorter but with a very few undeveloped ones forming short spinous processes on the petiole; dark green but not shining above, pale, and 8 to 10-nerved beneath; petiolule bright red, rather swollen, not twisted, but obliquely inserted in the rachis by an oblong subdecurrent pulvinulus. *Male cone* on a stout smooth peduncle three inches long, glaucous-green, seven inches long by nearly two broad, narrow oblong; scales cuneate, shortly pedicellate; terminal boss dilated, transversely rhomboid in front, with a similar central raised area, which bears a mucro on the lower scales, and an erect spine half an inch long on the upper scales; pollen-cells globose, covering the whole under-surface of the scale. *Female cone* also glaucous-green, on a very much stouter peduncle (one inch in diameter) than the male, broadly oblong, when in fruit four and a half inches long by three and a half broad, scales about sixty, suborbicular with a short stout pedicel; terminal boss transversely oblong, one and a half inches across, tumid, with a prominent transverse central ridge that gives rise to a triangular mucro in the lower scales, and an erect spine in the upper. *Seeds* (perfect?) orange-red, subglobose, three-quarters of an inch in diameter, contiguous. —*J. D. H.*

Fig. 1, Male and female plants:—*reduced*; 2, portion of leaf; 3, male, and 4, female cones; 5 and 6, male scales; 7, pollen-cell; 8, seeds on scale:—*all but 7 of the natural size.*

W. Fitch, del. et lith.

Vincent Brooks, Day & Son, Imp.

Tab. 5944.

GLADIOLUS PURPUREO-AURATUS.

Native of Natal.

Nat. Ord. Irideæ.—Tribe, Gladioleæ.

Genus Gladiolus, *Linn.*; (*Endl. Gen. Plant.*, p. 168).

Gladiolus *purpureo-auratus*; caule elato gracillimo, foliis scapo multoties brevioribus breviter ensiformibus acuminatis strictis erectis, scapo simplici v. diviso, racemo laxifloro inter flores nudo, floribus fere bifariis, bracteis lanceolatis tubo perianthii longioribus pallide viridibus, perianthii subhorizontalis tubo brevi, limbi æquali late campanulati segmentis late obovato-spathulatis apicibus recurvis obtuse acuminatis aureis, interioribus angustioribus, 2 anticis disco late purpurato, stigmatibus lineari-spathulatis emarginato-2-fidis.

The Natal Colony appears to be the head-quarters of the handsomer and more varied species of this fine genus; only last year the contrast was pointed out between the lurid, snake-headed flowers of *G. dracocephalus* (Tab. nost. 5884), and the vivid colouring of *G. Saundersii* (Tab. nost. 5873); to these must be added the most gorgeous of its race, *G. cruentus* (Tab. nost. 5810), and now, in the present plate, one of the most graceful and delicate, which is further remarkable for the pale golden-yellow of its flower, a very unusual colour in the genus. Mr. Baker, who has paid special attention to this genus, informs me that it is undescribed, and is not identifiable with any species in the Herbarium at Kew, but that it is nearest to *G. hirsutus* (Tab. nost. 574) and *G. Gondavensis*, Hort.; the former of which is a hairy pink-flowered species, and the latter a yellow one. *G. aurantiacus*, Klatt, another yellow flowered species, has a much longer perianth-tube.

Gladiolus purpureo-auratus was imported from Natal by Mr. Bull of Chelsea, to whom I am indebted for the specimen

here figured, which flowered in his establishment in August of the present year.

DESCR. Quite glabrous. *Stem* very slender, with the scape three to four feet high. *Leaves* short for the size of the plant, six to nine inches long, by three-quarters of an inch broad, acuminate, dark green, stout, erect. *Scape* simple or divided, very slender, 10 to 15-flowered, terete, quite naked between the flowers, from the bracts not sheathing the internodes. *Spike* eight to nine inches long. *Flowers* almost bifarious; bracts one to one and a half inch long, lanceolate, acuminate, exceeding the perianth-tube, pale green. *Perianth-tube* a quarter of an inch long, concealed by the bracts; limb broadly campanulate, one and a half inch in diameter, nearly regular, pale golden-yellow with a large purple irregularly elongated blotch which is broader at the apex, on the disk of the two lower segments; outer segments broadly obovate, with slightly recurved subacute tips, inner narrower and more spathulate. *Stigmas* linear-spathulate, recurved, tips notched, almost 2-lobed.—*J. D. H.*

Fig. 1, Entire plant:—*reduced;* 2, stamen; 3, stigma:—*magnified.*

W. Fitch del et lith

Vincent Brooks Day & Son Imp

Tab. 5945.

SENECIO (Kleinia) pteroneura.

Native of Southern Marocco.

Nat. Ord. Compositæ.—Tribe, Senecionideæ.

Genus Kleinia, *Linn.*; (*De Candolle, Prod. Syst. Veg.*, vol. vi. p. 336).

Senecio (Kleinia) *pteroneura*; glaberrima, glauca, caulibus suberectis fruticoso-carnosis laxe ramosis, ramulis erectis v. pendulis elongatis ½-¾ poll. diametro carinis ternis ex quaqua folii cicatrice decurrentibus ornatis, foliis in ramulis novellis paucis parvis elliptico-oblongis acutis v. mucronatis, capitulis ad apices ramulorum 1-3 crassis pedunculatis erectis 3-4 poll. longis, involucro cylindraceo elongato basi bracteolis 2-3 filiformibus acuto, squamis anguste linearibus ad apicem versus contiguis acuminatis, floribus ad 30 omnibus hermaphroditis patentibus, acheniis linearibus glaberrimis, pappo corolla breviore pilis tenuissimis, styli ramis apice breviter conicis.

Kleinia pteroneura, *De Cand. Prod.*, vol. vi. p. 338.

The subject of the accompanying plate is an example of an essentially South African group, inhabiting northern Africa, and is further remarkable as forming a connecting link between the vegetation of the three very remote geographical botanical districts of South Africa, the Canary Islands, and Arabia. In so far as I am aware, no *Senecio* of this habit has been found elsewhere in Northern, nor anywhere in Tropical Africa. Like many outlying species of genera with restricted limits, it departs a little from the characters of its immediate congeners; in this case in its remarkably odorous flowers, whose heliotrope-like scent is the chief merit the plant possesses as an object of cultivation to any but the lover of the curious.

Senecio pteroneura is a native of rocky and sandy hills on the Maroccan coast near Mogador, where it forms a lax leafless shrub, that supports itself in thickets of *Retama* and

other shrubs; it was discovered there by Broussonet many years ago, but only introduced into England last spring, where it flowered in the Royal Gardens in the following November.

The genus *Kleinia*, to which the species of *Senecio* with small conical tips to their style-arms have been hitherto referred, and which would have been a very natural one, could it have been made to include only the plants with the habit of *S. pteroneura*, has been abandoned by Mr. Bentham in his forthcoming revision of the order *Compositæ* for the Genera Plantarum.

Descr. Quite smooth, glaucous, glabrous. *Stems* four to eight feet high, lax, suberect; branches inarticulate, except at the ramifications, cylindric, pale green, half to three-quarters of an inch in diameter, nearly straight, obtuse, quite smooth except for the three longitudinal ridges that run down the surface from the small transversely oblong distant leaf-scars. *Leaves* only developed on the very young shoots, elliptic or lanceolate, acute or mucronate, green, nerveless, a quarter to three-quarters of an inch long. *Heads* solitary, or two or three at the tips of the branchlets, erect, cylindric, scarcely three-quarters of an inch long; contracted in the middle, with a few filiform bracts at the base; peduncles very stout, longer than the involucre, swollen upwards and gradually passing into the base of the involucre. *Involucral scales* twelve to fifteen, narrow-linear, convex at the back, so close placed as to appear connate by their margins nearly to the tips, which are scarcely recurved and acuminate, green, brownish-red about the middle. *Receptacle* pitted. *Flowers* about thirty, pale straw-coloured, much longer than the involucre, all spreading. *Corolla-tube* narrow, slender; segments very short, obtuse. *Style-arms* long, with conic tips. *Pappus hairs* very slender, white, much shorter than the corolla. *Achene* linear, smooth.—*J. D. H.*

Fig. 1, Portion of involucre; 2, flower; 3, hair of pappus:—*all magnified.*

W.W.Saunders. del. W.Fitch, del et lith

Vincent Brooks Day & Son Imp.

KNIPHOFIA CAULESCENS.

Native of South Africa.

Nat. Ord. Liliaceæ.—Tribe, Aloineæ.

Genus Kniphofia, *Mœnch*; (*Endl. Gen. Plant.*, p. 143).

Kniphofia *caulescens*; trunco erecto cylindraceo, foliis glaucis longissime subulato-ensiformibus ab ima basi ad apicem triquetrum sensim attenuatis dorso alato-carinatis, marginibus et carina argute serrulatis, scapo bracteolis parvis sparsis subulatis, racemo brevi fusiformi acuto, perianthii recti $1\frac{1}{2}$-pollicaris lobis brevibus obtusis, filamentis longe exsertis subæqualibus, ovario obovoideo.

Kniphofia caulescens, *Baker mss. in Hort. Kew et Wilson Saunders.*

The accompanying figure is taken from a drawing made by my friend, W. Wilson Saunders, Esq., F.R.S., who flowered this fine species of *Kniphofia* in his garden at Reigate, in June of the present year. It differs from all other species known to me, in the distinctly caulescent habit, in this respect approaching the arboreous Cape Aloes, amongst which Linnæus included the genus to which it belongs. From the well-known *K. Uvaria* this species further differs in its small size, very glaucous habit, short racemes, much smaller less curved flowers, longer more exserted subequal filaments, and obovoid ovary.

K. caulescens is a native of South Africa, where it was detected by Mr. Cooper, when collecting for Mr. W. Saunders in the Storm Bergen mountains, which bound the Albany district on the south, and border on British Caffraria; though a sufficiently striking species, it will never replace the gorgeous *K. Uvaria* as an ornamental border-plant, even if it is as hardy, which is very doubtful; as yet it has not been tried out of doors that I am aware of.

January 1st, 1872.

A dozen species of this fine genus are known to me; they are spread throughout Eastern and Southern Africa from Abyssinia to the Cape district; severval of them are said to grow in swamps, which is however not likely to be the case with the caulescent species. Col. Grant found one (when with Capt. Speke) in Tropical Africa, which he describes as a great ornament to the swamps and having a powerful honied smell, too sweet to be agreeable.

Descr. Trunk, in garden specimens six to ten inches high, as thick as the thumb in our specimen, with short fleshy roots. *Leaves* rather soft, very glaucous, spreading and recurved, two feet long, two and a half inches to two and three-quarters broad at the base, from which they are gradually narrowed to the fine triquetrous tip; keel acute, winged in the later produced leaves, margin and keel serrulate; veins about fifty, obscure; upper surface concave. *Scape* six to ten inches high, stout, erect, green, with many scattered subulate bracts. *Raceme* five to seven inches long, stout, spindle-shaped. *Flowers* pendulous, very dense and numerous, concealing the small subulate bracts; pedicels one quarter inch long. *Perianth* nearly one inch long, straight, nearly equal, base rounded, deep blood-red when young, yellow after expansion; lobes small, obtuse. *Stamens* more than half as long again as the perianth, straight, nearly equal; anthers small, yellow. *Ovary* ovoid.—*J. D. H.*

Fig. 1, Whole plant:—*reduced*; 2 and 3, base and tip of leaf; 4, top of scape and raceme:—*of the natural size*; 5, flower; 6, ovary:—*both magnified.*

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Tab. 5947.

SALVIA rubescens.

Native of New Grenada.

Nat. Ord. Labiatæ.—Tribe, Monardeæ.

Genus Salvia, *Linn.*; (*Benth. in DC. Prod.*, vol. xii. p. 262).

Salvia (Calosphace) *rubescens;* erecta, fruticosa, canescens, foliis petiolatis ovatis ovato-cordatisve acutis v. acuminatis crenatis subtus nervisque supra canis, spicis pyramidatim paniculatis glanduloso-pubescentibus glutinosis, verticillastris 4-8 floris distantibus, calycis purpurei labio superiore late ovato subacuto, inferiore 2-fido, laciniis acuminatis, corolla coccinea calyce duplo longiore glaberrima.

Salvia rubescens, *Humb., Bonpl. and Kunth, Nov. Gen. et Sp.*, vol. ii. p. 301, t. 154. *Benth. in DC. Prod.*, vol. xii. p. 345.
S. boliviana, *Planch. in Flore des Serres*, t. 1148.

A beautiful Andean Sage, belonging to the great group of *Calosphace*, which comprises most of the species of that immense European and American genus. It is a native of New Grenada, and was introduced into Europe first by M. Von Warscewicz, who sent seeds from Bolivia to M. Van Houtte, which flowered at Ghent in 1856, and from which the drawing cited above was published as *S. boliviana*. More recently Mr. Anderson Henry received seeds from Prof. Jameson of Quito, and raised plants, one of which being sent to the Royal Gardens, flowered in 1862, and is here figured.

Descr. A tall branched shrub, with herbaceous branches, more or less clothed with a pale hoary pubescence, most conspicuous when dry. *Stems* four-angled, with concave faces, angles obtuse. *Leaves* very variable in size, four to ten inches long, three to five inches broad, long-petioled, ovate-cordate, crenate, acute or acuminate, puberulous on the upper

surface, hoary beneath; veins very numerous, especially towards the base of the leaf, hoary on the upper surface; petiole two to five inches long. *Panicle* a foot or more long, pyramidal, leafless, ebracteate, densely studded with glandular viscid hairs; branches ascending; whorls rather distant, 4 to 8-flowered, pedicels one quarter to half inch long. *Flowers* horizontal or ascending, one inch long. *Calyx* obliquely campanulate, densely glandular-hairy, purple-brown; upper lip short, broad, acute or mucronate, reflexed; lower decurved, longer, with two subulate segments. *Corolla* twice as long as the calyx, perfectly glabrous, scarlet, tube slightly ascending, of nearly equal diameter throughout, one-fifth inch wide; upper lip short, elliptic, straight, convex; lower deflexed, with two short rounded lateral lobes, and a broad orbicular crenate emarginate deflexed midlobe. *Anther* elliptic-oblong, connective very long, flattened, slightly curved, ciliate-along the outer edge. *Disk* unilateral, very large, ovate-oblong, obtuse. *Style* slender, hairy above; segments short, acute. —*J. D. H.*

Fig. 1, Lateral, 2, front view of flower; 3, anther; 4, ovary, disk and style:—*all magnified.*

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Tab. 5948.

PHILODENDRON RUBRO-PUNCTATUM.

Native of Brazil.

Nat. Ord. Aroideæ.—Tribe, Philodendreæ.

Genus Philodendron; (*Schott. Prod. Syst. Aroid.*, p. 219).

Philodendron (Polytomium) *rubro-punctatum*; acaulis, foliis numerosis petiolo 2-3 pedali costa longiore dorso cylindrico facie angusto angulis obtusis, lamina 2-pedali ambitu ex ovato-cordato sagittata sinu angusto fere clauso ad medium pinnatifida, lobis consimilibus curvis approximatis obtusis terminali brevi acuto, lobis in auriculis posticis 5-6 infimis brevioribus, costa in sinu nuda, pedunculis brevissimis, spatha 5-6 pollicari, tubo obovoideo ex albo virescente lamina, oblongo-cymbiformi cuspidata alba punctis sanguineis remotis conspersa, spadicis parte fœminea 3-pollicari basi postice spathæ adnata, masculo duplo longiore pallide sulphureo, ovariis albis 5-locularibus loculis multi-ovulatis, stigmate 5-lobo lobis hemisphericis, antheris brevibus.

No task of its kind is more difficult than that of naming tropical Aroids; they are very numerous, belong to a great many genera, not all of them readily distinguishable without complete materials, and no private establishment can afford the means of cultivating plants occupying so great a space, and requiring so much heat. Collections of Aroids are hence pretty nearly confined to Royal Establishments and Botanic Gardens. When grouped as they are in the Aroid House at Kew, they serve more than perhaps any other family of the vegetable kingdom, to convey some just idea of the rich luxuriance, strange and varied forms, deep hues, and glossy evergreen character of a tropical jungle. Second only to Kew is, (and has been from the days of its late Director, Dr. Schott) the magnificent Aroid Houses of the Imperial Palace of Schœnbrunn near Vienna, whence, indeed, Kew derived many of its treasures. Upwards of one hundred and thirty species of *Philodendron* are described in Schott's "Monograph of Aroideæ,"

many of them indeed imperfectly, but all differing so materially from this, that I have no hesitation in describing it as new; it is further one of the few stemless species, and is conspicuous for the sprinkling of blood-coloured spots on the spathe. It flowered in May, 1871, and was, we believe, sent from the Blumenau Gardens in South Brazil by Victor Gærtner, in 1868.

Descr. *Stem* none, or a short stock, clothed with brown fibrous sheaths that embrace the bases of the petioles. *Petiole* two and a half to three feet long, swollen at the base, cylindric except for about a quarter of the circumference, which is concave, with obtuse, raised edges. *Blade* of the *leaf* two feet long, broadly sagittate-ovate, bright-green and glossy, pinnatifid half-way to the middle; lobes regular, upcurved, linear, obtuse, rather broader than the obtuse intervening sinus; auricles (or posterior lobes) about one quarter as long as the blade, approximate or touching, with a narrow obtuse included sinus, the nerve marginal on the sinus, outer side cut like the rest of the blade into four or five lobes; costæ of the lobes very strong, rounded; nerves slender, oblique, anastomosing within the margin. *Spathes* crowded, almost sessile, five to six inches long, white sprinkled with blood-red; tube greenish, rather narrowly obovoid, one and a half to one and three-quarters of an inch in diameter; blade longer, oblong, boat-shaped, abruptly acuminate, margins hardly reflexed. *Spadix* as long as the spathe, female portion three inches long, conical, three-quarters of an inch in diameter at the base, which is obliquely adnate to the spathe; male portion about twice as long, obtuse, pale dirty yellow. *Anthers* sessile. *Ovary* broadly turbinate, 5-celled; stigma of five sessile lobes; ovules many in each cell.—*J. D. H.*

Fig. 1, Reduced figure of entire plant; 2, spathe; 3, spadix: *both of the natural size;* 4, ovary; 5, vertical, and 6, transverse section of the same; 7, imperfect stamens from above the ovaries; 8, perfect stamens:—*all magnified.*

W.Fitch, del et lith.

Vincent Brook[illegible] imp

Tab. 5949.

TRICHOPILIA HYMENANTHA.

Native of New Grenada.

Nat. Ord. Orchideæ.—Tribe, Vandeæ.

Genus Trichopilia, *Lindl.*; (*Reichb. f. in Walp. Ann.* vol. vi. p. 679).

Trichopilia *hymenantha*; rhizomate brevi; folio recurvo crasse coriaceo 6-8-pollicari elongato-ensiformi acuminato, utrinque angustato basi tereti dorso convexo, facie canaliculato, racemo gracili brevi laxe 6-8-flore, floribus albis, sepalis petalisque lanceolatis subtortis, labello sessili sanguineo-consperso late elliptico acuminato planiusculo, marginibus erosis, basi utrinque 2-calloso, columna apice galeata, galeæ marginibus fimbriatis.

Trichopilia hymenantha, *Reichb. f. in Bonplandia*, vol. ii. p. 90; *Xen. Orchid.* p. 17, t. vii. f. 1—11; *Walp. Ann.* vol. vi. p. 679.

Nearly a dozen species of the genus *Trichopilia* have been described by Reichenbach f. in Walper's Repertorium, all of them natives of Equatorial America, and limited to the area comprised between Mexico, Caraccas, and Peru, where they inhabit humid forests at moderate elevations; the species vary a good deal in habit, and in the form of the leaf, but are otherwise pretty well characterized by the celebrated Orchidologist above mentioned. *T. hymenantha* is perhaps the most delicate in the colour and texture of the flowers of any species of the genus; it was first described in 1854 from the celebrated collection of Consul Schiller at Hamburgh, and has since then been cultivated in several collections. The drawing here given is from a beautiful specimen communicated by Messrs. Veitch.

Descr. *Rootstock* short. *Leaves* tufted, six to eight inches long, recurved, narrowly sword-shaped, one fourth to one third of an inch in diameter, gradually narrowed to the acuminate tip, terete at the base, thickly coriaceous, back

very convex smooth, face channelled, the sinus acute at the base (*i.e.*, at the midrib) pale-green on both surfaces; basal sheaths tight, brown, scarious, acute. *Raceme* three to four inches long, almost sessile, 6-8-flowered, slender, drooping; bracts short, ovate, acute. *Flowers* subsessile, nearly one and a half inches in diameter. *Ovary* slender. *Sepals* and *petals* nearly equal and similar, lanceolate, acuminate, slightly twisted, white. *Lip* sessile, broadly elliptic, abruptly acuminate, nearly flat, membranous, margins erose, white speckled with blood-red; base with two short small conniving ridges, and an obscure depression in front of them. *Column* white, slightly bent backwards from about the middle, abruptly terminated by a broad open obtusely trapeziform hood with fimbriate margins; angles below the hood with a short subulate recurved appendage on each side. *Anthers* small, sunk in the hood.—*J. D. H.*

Fig. 1, Side, and 2, front view of column; 3, lip :—*all magnified.*

W. Fitch del et lith.

Vincent Brooks Day & Son imp.

Tab. 5950.

STYRAX serrulatum.

Native of India and Japan.

Nat. Ord. Styracaceæ.—Tribe, Styraceæ.

Genus Styrax, *Tourn.*; (*Alph. DC. Prod.* vol. viii. p. 259).

Styrax *serrulatum*; ramulis gracilibus glabris v. puberulis, foliis ellipticis v. elliptico-lanceolatis v. late et subtrapeziformi ovatis regulariter v. irregulariter serratis interdum uno latere sinuato-lobatis acutis acuminatis v. obtusis in petiolum angustatis, utrinque glabris v. costa superne puberula, cymis 3-6-floris terminalibus nutantibus, floribus gracile pedunculatis, calyce hemispherico-turbinato v. campanulato demum glabro obscure 5-dentato, petalis canis.

Styrax serrulata, *Roxb. Flora Indica*, vol. ii. p. 415; *Wall. Cat.* n. 4402; *Alph. DC. l.c.* 267.

S. japonicum, *Sieb. and Zucc. Fl. Jap.* vol. i. p. 53, t. 23; *Alph. DC. l.c.* p. 266; *Regel Garten Flora*, vol. xvii. t. 583.

A bush or small tree, common in Southern Japan, where it is much cultivated on account of its ornamental appearance, both in gardens and by roadsides. It was also found in the straits of Corea by Wilford when collecting for the Royal Gardens in 1859, and in the Loo-Choo Islands by the United States North Pacific Exploring Expedition in 1854, and is abundant in Eastern Bengal, from the Himalayas, the Khasia Mountains, Chittagong, &c. to Penang. It is curious that so well-known and widely diffused a plant should not have been described in Thunberg's "Flora of Japan," or in the earlier work of Kæmpfer. Siebold gives its native name as Tsisjano-ki, and Oldham, who introduced the plant into Kew, as Naats'-gi.

The young shoots of this and other species of *Styrax* are much infested by a gall-producing insect, that transforms the young leaves into incurved club-shaped bodies covered with

stellate down, and which form rosettes on the branches of a singular appearance. The same occurs on Himalayan and Khasian specimens, which bear another gall that is branched like a stag's horn, and resembles somewhat that which occurs on the Himalayan *Rhus*, and is imported and used in tanning. The plant from which the accompanying drawing was taken, flowered in the Temperate House of the Royal Gardens in June, 1871.

Descr. A large shrub or small spreading tree; branches slender, drooping, glabrous, the youngest sprinkled with minute stellate down, as are the young leaves and calyces. *Leaves* very variable in size and form, one and a half to three inches long, usually elliptic or elliptic-lanceolate, sometimes much broader and trapeziform-ovate, or almost rounded, acute or acuminate, rarely obtuse or rounded at the tip, base narrowed into the short slender petiole; margins usually regularly acutely glandular-serrate, sometimes obtusely lobed on one side; surfaces quite glabrous; nerves strong beneath; petiole one-third to one-half inch long. *Flowers* three-quarters to one inch in diameter, in terminal few (3–6)-flowered cymes, rarely solitary and axillary; cymes equalling or exceeding the leaves, drooping; peduncles and pedicels slender. *Calyx-tube* turbinate or campanulate, green, with five obscure lobes or teeth. *Petals* white, elliptic, obtuse or acute, densely stellately pubescent outside. *Stamens* with rather slender filaments and long linear anthers, minutely pubescent. *Style* slender. *Fruit* one-third to one-half inch in diameter, globose, subtended by the brown membranous remains of the calyx, hoary. *Seeds* pale-brown. —*J. D. H.*

Fig. 1, Corolla laid open; 2, stamens; 3, pistils:—*all magnified*; 4, ripe fruit:—*of the natural size.*

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Tab. 5951.

APHELANDRA SULPHUREA.

Native of Guayaquil.

Nat. Ord. Acanthaceæ.—Tribe, Aphelandreæ.

Genus Aphelandra, *R. Br.*; (*Nees in DC. Prod.*, vol. xi. p. 295).

Aphelandra *sulphurea*; caule teretiusculo, foliis breviter crasse petiolatis late ellipticis abrupte acuminatis, costa crassa, nervis validis superne læte viridibus subtus pallidioribus spica, sessili amentiformi elongato stricto angusto cylindrico glaberrimo, bracteis pollicaribus arcte imbricatis ovato-lanceolatis acutis venosis apices sphacelatas versus pauciserratis viridibus, bracteolis parvis ovato-subulatis calycis lobis anguste oblongo-lanceolatis acuminatis $\frac{3}{4}$ brevioribus, corollæ aureo-sulphureæ tubo curvo, labio superiore stricto angusto convoluto, inferiore amplo 3-partito, lobis lateralibus elliptico-lanceolatis subacutis, intermedio majore et latiore.

This is the second species of *Aphelandra* which has been introduced within the last few years by the Messrs. Veitch, from Guayaquil, the other being the far more showy *A. nitens*, figured at Tab. 5741 of this work. As a species, the present is more nearly allied to *A. aurantiaca*, Lindl. (Tab. nost. 4224), which differs in the orange-red flowers, narrower lateral lobes of the lower lip, and long bracteoles nearly equalling the calyx.

The *Aphelandras*, like other *Acanthaceæ*, are plants of easy cultivation with those who will pay ordinary attention to the requirements of their class, by giving them a proper rest, while their neat habit, showy colours, and protracted period of flowering render them admirably adapted for the shelf of a hothouse. As it is, of the ten or twelve species that have been introduced into England, few survive in cultivation, chiefly owing to the indiscriminate use of the watering-pot.

Descr. A perfectly glabrous, bright-green, erect, herbaceous plant. *Stem* stout, terete, sparingly branched. *Leaves*

six to nine inches long, on short stout petioles, broadly-elliptic or elliptic-ovate, abruptly acuminate, convex, bright-green and glossy above, much paler beneath; midrib stout, pale above; nerves strong, much arched; petiole one-half to three-quarters of an inch long. *Spike* five to eight inches long, about three quarters of an inch in diameter, strict, erect, sessile, cylindric, embraced at the base by two very small sessile-appressed leaves, which are shorter than the bracts. *Bracts* closely imbricate, nearly one inch long, elliptic-lanceolate, acuminate, much-veined, green with a brown tip, ciliolate, 2–3-toothed on each side towards the tip, not keeled. *Bracteoles* subulate-lanceolate, equalling one-quarter of the calyx. *Calyx* concealed by the bract; segments linear-lanceolate, acuminate, puberulous. *Corolla* dark or golden sulphur-coloured, tube protruding half an inch beyond the bract, curved; limb one and a quarter inch across; upper lip erect, narrow, convolute; lower with three segments of nearly equal length; the lateral spreading, elliptic-lanceolate, subacute; the middle one-third larger, broader, obtuse, with a small orange-red spot at the base.—*J. D. H.*

Fig. 1, Bract; 2, bracteoles, sepals, and style:—*all magnified.*

W. Fitch, del et lith

Vincent Brooks Day & Son Imp

Tab. 5952.

ÆTHIONEMA CORIDIFOLIUM.

Native of Asia Minor and Lebanon.

Nat. Ord. Cruciferæ.—Tribe, Lepidineæ.

Genus Æthionema, *R. Br.*; (*Benth. and Hook. Gen. Plant.*, vol. i. p. 88).

Æthionema *coridifolium*; multicaule, caulibus brevibus simplicibus crassiusculis, foliis crebris linearibus v. lineari-oblongis obtusis carnosulis glaucis, racemis densifloris, floribus lilacinis, petalis spathulatis limbo orbiculato emarginato v. bilobo, siliculis obovato-oblongis basi retusis apice emarginatis, alis angustis modice inflexis integris v. obscure dentatis, stylo sinu angusto multo breviore.

Æthionema coridifolium, *DC. Syst.*, vol. ii. p. 561; *Prod.*, vol. i. p. 209; *Deless. Ic. Select.*, vol. ii. t. 76 (*silicula excepta*); *Boiss. Fl. Orient.*, vol. i. p. 347.

Lepidium leiocarpum, *DC. Syst.*, vol. ii. p. 563.

Iberis jucunda, *Schott et Kotschy mss.*

The similarity of this plant to the *Iberidella rotundifolia*, figured at Tab. 5749 of this work, is very manifest, and is a strong argument for reducing the genus *Iberidella* to *Æthionema*, as has indeed been done of late by M. Boissier, in his "Flora Orientalis;" the difference between them lies chiefly in the capsule, which is broadly winged in *Æthionema*, and scarcely winged in *Iberidella*.

Æ. coridifolium is a native of rocky mountains in the East, having been originally found by Labillardiere upon Mount Lebanon, where it has subsequently been gathered, between the village of Eden and the famous cedar grove, by Boissier; it has also been found in the Cilician Taurus by Kotschy, who probably introduced it into the Botanic Garden of Vienna, whence it was sent by M. Maly to Messrs. Backhouse, with whom the specimen here figured flowered in May, 1871. It is a most charming hardy perennial, well suited for rockwork, and more likely to suffer from the damp than the cold of

our climate. Regel says that it forms an excellent and very beautiful border-plant, and is easily propagated from seeds, as indeed is the case with the specimen now at Kew, which seeded freely last autumn.

Descr. Quite glabrous throughout. *Root-stock* branching, perennial. *Stems* many, ascending, three to six inches long, leafy. *Leaves* pale green, glaucous, spreading, linear or linear-oblong, rather broader upwards, sessile, acute, or obtuse, two-thirds to three-quarters of an inch long, by one-eighth to one-sixth of an inch broad, nerveless, quite entire. *Flowers* in a very dense short oblong round-topped cylindric raceme, which is one to one and a half inches long, and three quarters of an inch broad, pale rose-pink in colour; pedicels short, quite concealed. *Sepals* linear-oblong, obtuse, erect. *Corolla* quite equal and regular, one-fourth to one-third of an inch broad; petals very broadly spathulate; blade rounded or broader than long, notched or 2-lobed. *Filaments* of the larger stamens nearly equal throughout their length in our plant (dilated below the middle, and not toothed according to Boissier,—with a small tooth according to De Candolle); anthers short, yellow. *Capsule* obovate-oblong, concave, notched at both ends; wing narrow, quite entire; style not exceeding the notch.—*J. D. H.*

Fig. 1, Front, and 2, side view of flower; 3, petals; 4, stamens and ovary; 5, ovary:—*all magnified.*

Tab. 5953.

STYLIDIUM spathulatum.

Native of King George's Sound.

Nat. Ord. Stylidieæ.

Genus Stylidium, *Swartz*; (*Benth. Flor. Austral.*, vol. iv. p. 1).

Stylidium *spathulatum*; foliis radicalibus petiolatis dense rosulatis obovato- v. elliptico-spathulatis obtusis acutisve integerrimis pubescentibus v. glanduloso-pilosis enerviis, scapis gracilibus erectis glabratis, squamis paucis subulatis, racemo simplici erecto laxifloro, pedicellis gracilibus 2-bracteolatis, calycis tubo subclavato, lobis liberis ovato-lanceolatis, corollæ pallide stramineæ segmentis 4 lineari-oblongis apice rotundatis basi aurantiacis quinto minuto subulato recurvo, capsula obovoideo-oblonga.

Stylidium spathulatum, *Br. Prod.*, p. 569; *DC. Prod.*, vol. vii. p. 33; *Benth. Fl. Austral.*, vol. iv. p. 17.

S. bellidifolium, *Sonder in Plant. Preiss.*, vol. i. p. 376.

Comparatively very few species of the most curious genus *Stylidium* have been cultivated in England, though it is one of the largest in Australia, numbering in Bentham's Flora of that continent, eighty-three species; of these many are very beautiful plants, and all remarkable for the irritability of the column of the style and stamens, which remains curved down from the perianth till touched at the bend, when it springs up with elastic force, scattering the pollen; an arrangement doubtless intended to secure cross-impregnation, by causing the insects which may visit one flower to carry its pollen to another. Altogether some twenty species have been in cultivation at one time and another, of which ten have been figured in this work, but I very much doubt whether more than three or four could now be mustered in the United Kingdom, so little interest is shown by horticulturists in any but showy plants.

February 1st, 1872.

S. spathulatum is a native of South-western Australia, which is the head-quarters of the genus, and was raised at Kew from seeds sent home by Mr. Maxwell, a well-known horticulturist in that colony, and valued correspondent of the Royal Gardens.

Descr. *Rootstock* short, with many tufted fibres, producing a solitary rosette, rarely proliferous. *Leaves* very variable in size, forming a dense crowded rosette two to four inches in diameter, three quarters of an inch to two inches long, obovate or elliptic-spathulate, acute or obtuse, narrowed into a petiole, glandular-pubescent or pilose, quite entire, coriaceous. *Scapes* few or many, four to ten inches high, very slender, flexuous, more or less glandular-pubescent, scales or scape-bracts few, scattered, erect, subulate. *Raceme* simple, two to ten inches long, lax-flowered. *Flower* half an inch in diameter, pale straw-coloured with an orange-red spot in the centre; pedicels very slender, a quarter to half an inch long, with a minute basal bract and two alternate equally small bracteoles. *Calyx-tube* clavate, terete, twice as long as the ovate-lanceolate acute lobes. *Corolla-lobes* five; four of them linear-oblong, tips rounded, each with a small 2-lobed gland at the very base; the fifth very small, subulate, recurved. *Column* about as long as the petals, slender; anthers purple; stigma naked. *Capsule* narrowly obovoid-oblong.—*J. D. H.*

Fig. 1, Leaf; 2, front and back view of flower:—*all magnified.*

W. Fitch, del et lith.

Vincent Brooks Day & Son Imp.

Tab. 5954.

TODEA barbara.

Native of Temperate Australia and South Africa.

Nat. Ord. Filices.—Subord. Osmundaceæ.

Genus Todea, *Willd.*; (*Hook. et Bauer, Gen. Fil.*, t. xlvi. B).

Todea *barbara*; caudice subarborescente, fronde lanceolata pinnata v. 2-pinnata, pinnis coriaceis glabris v. subtus pilosulis erecto-patentibus, pinnulis approximatis lineari-oblongis acutis crenato-dentatis v. lobulatis superioribus confluentibus, soris densis globosis.

Todea barbara, *Moore Ind. Fil.*; *Hook. et Baker Synops. Fil.*, 427.

Todea africana, *Willd. in Schrift. Acad. zu Erfurt*, 1802, p. 14. t. 3. f. 1; *Swartz Syn. Fil.*, 162; *Hook. and Bauer Gen. Fil. l.c.*; *Hook. f. Fl. Nov. Zeal.*, vol. ii. 48 and 338; *Fl. Tasman.*, vol. ii. 153, t. 178; *Lowe's Ferns*, 8, t. 67; *Smith Ferns Brit. and For.*, 265.

Todea rivularis, *Sieber*; *Kunze Analect.*, 64.

Osmunda barbara, *Thunb. Prodr. Fl. Cap.*, 171; *Flor. Cap. Ed. Schultes.* p. 732.

Osmunda barbata, *Brown Prodr. Fl. Aust.*, 163.

Acrostichum barbarum, *Linn. Sp. Pl.*, p. 1529; *Hort. Cliffort.*, p. 496; *Amœn. Acad.*, vol. i. p. 274.

Filix Africana, &c., *Plukenet Almag.*, p. 156, t. 181, f. 5.

Amongst the striking objects in the Great Temperate House at Kew, none has of late attracted more notice than the gigantic specimen of *Todea barbara*, or as it is there called (from its affinity to our British Osmunda), the Australian Fern Royal, sent by Baron Von Mueller, from the Victorian Alps, in 1869. Huge specimens of this plant had previously been sent to Europe from Australia, and, after seeing four such exhibited at the St. Petersburg Horticultural Exhibition in 1869, I wrote to my friend the Baron, and begged him to procure for us the largest specimen he could; which with his wonted promptitude and liberality, he did at

once, so that before the end of that same year, Kew was possessed of the finest specimen in Europe, transmitted moreover free of cost for transport or voyage.

None of these St. Petersburg examples equalled that here figured in bulk or weight; and owing to defective treatment, their foliage was so starved, that they looked rather like grotesque vegetable monsters, than the truly noble plants which they would have been, had their natural wants been supplied. As with almost all other Ferns, *Todea barbara* likes humidity and shade, and it is under these conditions that, at the bottom of the dark gorges of the Australian Alps, it attains its gigantic bulk and luxuriant crown of fronds, growing out of steep banks, with its base often washed by a torrent. Stuck upright in a tub, as usually planted in our greenhouses, the roots which clothe the huge caudex soon dry, and the fronds are imperfectly developed; but when set upon a shallow vessel of water, propped up between stones in front, a mass of earth kept in place by cask-staves behind, and when stones, earth, and caudex are clothed with Lycopodium, it sends out fountains of fronds throughout the year. The specimen here figured arrived at Kew in the autumn of 1869, and weighed in its dry state, when taken out of the box of sawdust in which it was packed, exactly fifteen cwt.; it then had not a frond developed on it, now it has some 30 crowns, and in all just 160 fronds, averaging five feet in length. The reduced figure given on the accompanying plate, being taken from above the level of the plant, gives no idea of its stateliness and effect.

Still larger specimens than the above have been since sent to Europe by Baron Von Mueller, of which one, presented by him to Mr. J. Booth, of Flottbeck, Hamburgh, weighed one ton three cwt., its dimensions being five feet eight inches high, seven feet nine inches wide, and three feet three inches in its smaller diameter.

The genus *Todea* takes the place of *Osmunda*, in the Southern hemisphere, and was united with it by R. Brown, as I think with much reason. *T. barbara* is a native of Tasmania, S. and E. Australia, and South Africa, in which latter country, however, it does not, in so far as I know, attain the dimensions that it does in Australia. Linnæus named it *Acrostichum barbarum*, because of its African origin; but it is not a native of Barbary.—*J. D. H.*

Vincent Brooks Day & Son, Imp

Tab. 5955.

BULBINE Mackenii.

Native of Natal.

Nat. Ord. Liliaceæ.—Tribe, Asphodeleæ.

Genus, Bulbine, *Linn.*; (*Harv. Gen. Cape Plants*, p. 400).

Bulbine *Mackenii*; radicibus et collo fibris brunneis intertextis dense vestitis, foliis late ovato-oblongis obtusis v. subacutis patentibus glabris planiusculis enerviis, scapis gracilibus glaucis, bracteis minutis, racemis multi-laxifloris, pedicellis pollicaribus patentibus, floribus ½ poll. diam., sepalis petalisque fere e basi patentibus subæqualibus lineari-oblongis obtusis aureis, filamentis perianthio paulo brevioribus gracilibus nudis, antheris parvis.

This pretty plant does not accord with any genus as at present described, but cannot I think be excluded from *Bulbine*, a large genus of South African plants, from which its beardless stamens alone distinguish it. The only alternative is to place it in *Bulbinella*, from which it differs in the numerous (not twin) ovules, and filaments all equal in length; or in my genus *Chrysobactron* (Tab. Nost., 4062), which has also twin ovules, and which differs from *Bulbine* in no important particular. Upon the whole I am disposed to think that the best plan would be to retain the Linnean genus *Anthericum*, which he substituted for *Bulbine*, and to include in it species with glabrous and bearded filaments; subdividing it primarily into those with twin ovules in each cell (*Bulbine* including *Chrysobactron*), and species with several ovules in each cell, which is again divisible into those with bearded and those with beardless filaments. Endlicher (Gen. Pl., 148) has indeed included *Bulbine* under *Anthericum*, but his character of the latter genus excludes the 2-ovuled species, and attributes to it a declinate style.

Bulbine Mackenii was transmitted from Natal by Mr. McKen, the energetic superintendent of the D'Urban Botanic

Gardens ; it flowered in the Royal Gardens in July of last year, and of the previous one, the flowers opening after mid-day.

Descr. *Root* of tufted fleshy fibres, clothed, as is the neck of the plant, with coarse matted red-brown filaments. *Leaves* appearing with the flowers, two to three inches long, by one and a quarter to one and a half inches broad, spreading from the neck, ovate-oblong, obtuse or subacute, quite glabrous, rather fleshy, smooth, nerveless, pale beneath ; young convolute, with red margins. *Scapes* two (in our specimen), a foot high, slender, cylindric, glabrous, green. *Raceme* six to ten inches long, 20–30-flowered ; pedicels spreading almost horizontally, one inch long, with a minute ovate acute bract one-eighth inch long at the base. *Flower* jointed on the pedicel, half an inch in diameter, bright golden-yellow. *Perianth-segments* linear-oblong, obtuse, spreading almost from the base, 1-nerved, with green tips and keel at the back. *Stamens* inserted at the base of the perianth-segments, rather shorter than these, filaments slender, not flattened, equal ; anthers small. *Ovary*, sessile, broadly elliptic, truncate, 3-lobed ; style straight, subulate, stigma minute ; ovules about six in each cell. "Seeds woolly," (*Baker*).—*J. D. H.*

Fig. 1, Flower ; 2, ovary ; 3, transverse section of ditto :—*all magnified.*

Ex. del. pth

Tab. 5956.

DENDROBIUM TETRAGONUM.

Native of Moreton Bay.

Nat. Ord. Orchidaceæ.—Tribe, Malaxideæ.—Section, Dendrobieæ.

Genus, Dendrobium, *Swartz*; (*Lindl. Gen. and Sp. Orchid.*, p. 74).

Dendrobium *tetragonum*; pseudobulbis fasciculatis anguste elongato-clavatis in stipitem gracilem basi tuberosum attenuatis acute 4-gonis articulatis, foliis binis patentibus elliptico-lanceolatis acuminatis coriaceis undulatis, racemis brevibus terminalibus 1-paucifloris sepalis elongatis anguste lanceolato-subulatis, lateralibus pendulis tortis, petalis sepalis brevioribus et angustioribus, labello sepalis multo breviore ovato, lobis lateralibus rotundatis, intermedio late ovato mucronato revoluto.

Dendrobium tetragonum, *F. Muell. Fragm. Phytog.*, vol. i. p. 87.

A very distinct species of Dendrobe, a native of the wooded islets in Moreton Bay, for which the Royal Gardens are indebted to Messrs. Rollisson and Sons, of Tooting. It is remarkable for the very long pendulous stems or pseudobulbs, which hang in masses from the tree trunks, and are terminated by a pair of waved leaves. The flowers are by no means handsome, and its singular habit alone recommends it for cultivation. The specimen here figured flowered in the Royal Gardens in November of last year.

Descr: *Stems* or *pseudobulbs* pendulous, densely fascicled, five to sixteen inches long, acutely tetragonal, very narrowly clavate, narrowed downwards into a very slender rigid terete stalk, which suddenly dilates into a globose woody tuberous base that emits roots from its under surface, that attach it to bark of the trees it grows on; tubers one-third inch diameter, transversely scarred, persistent. *Pseudobulbs* jointed on to the tuber, and at distant intervals throughout

their length; faces hollowed, sheathed towards the thickest part, which is one-third to half inch in diameter; sheaths short, appressed, membranous, triangular, ovate, acute. *Leaves* two to three inches long, in pairs at the end of the pseudobulb, spreading, elliptic-lanceolate, acuminate, undulate, deep green, coriaceous, keeled at the costa beneath. *Raceme*, with a very short, brown, rigid rachis, placed between the leaves, half to one inch long, bearing one or few flowers; bracts very small, scarious; peduncle slender, yellow, half an inch long. *Flower* four inches long from the tip of the dorsal to that of the lateral sepals, pale dirty-yellow suffused with pink. *Sepals* equal, narrow-subulate, lanceolate, upper erect, straight; two lateral twisted, pendulous, edged with red. *Petals* one-third shorter and proportionally narrower than the sepals. *Lip* ovate in outline, whitish with transverse pink bars, very much smaller than the sepals; lateral lobes short, rounded; mid-lobe broadly ovate, mucronate, revolute; disk with two slender keels. *Column* very short.—*J. D. H.*

Fig. 1, Peduncle, ovary, and lip; 2, column; 3, front view of lip:—*all magnified.*

W Fitch del et lith

Vincent Brooks Day & Son, Imp

Tab. 5957.

EXANTHEMUM PALATIFERUM.

Native of Silhet.

Nat. Ord. Acanthaceæ.—Tribe, Eranthemeæ.

Genus, Eranthemum, *L.*; (*Nees in A. DC. Prodr.*, vol. ii. p. 445).

Eranthemum *palatiferum*; glabrum v. puberulum, ramulis teretibus, foliis lanceolatis obtuse acuminatis integerrimis v. subcrenatis glabris, racemis (spicisve) terminalibus basi compositis recurvato-patentibus multifloris, floribus fasciculatis sessilibus secundis, bracteis subulatis calycisque segmentis linearibus glanduloso-pubescentibus, corolla lilacina v. sanguinea, tubo gracili calyce multoties longiore, limbi 2-labiati explanati lobis 2 superioribus minoribus oblongis obtusis, inferiore rotundato, lateralibus late oblongis, antheris cæruleis.

Eranthemum palatiferum; *Nees in A. DC. Prodr.*, vol. ii. p. 457.

Justicia palatifera; *Wall. Pl. As. Rar.*, vol. i. p. 80, *t.* 92.

Eranthemum crenulatum; *Nees in Wall. Pl. As. Rar.*, vol. iii. p. 107; *et in A. DC. Prodr.*, vol. ii. p. 453; *non Wall. in Bot. Reg.*, *t.* 879? nec E. crenulatum *Tab. nost.* 5440.

Very closely allied to, but much less handsome than *E. cinnabarinum*, which was figured last year (Tab. 5921) in this work, and differing remarkably in the form of the leaves, which, curiously enough, are variegated in both species in our stoves, suggesting a common origin for this sport or disease. It is a native of the hilly regions of N.E. Bengal, where it was discovered by a collector of the Calcutta garden, Mr. F. de Silva, and well figured by Wallich as *Justicia palatifera*, from specimens introduced into the Calcutta Botanic Garden in 1825. Singularly enough, no specimens occur under this name in Wallich's Herbarium, where, however, this species is abundantly represented under *E. crenu-*

latum, a rather common Indian hill plant, which I gathered at Chittagong, and which extends thence to Java, and is also found in Ceylon and the Madras Peninsula.

The history of *E. crenulatum** is obscure; it first appears in the *Botanical Register* (Tab. 879) in 1825, as a ms. name of Wallich's, applied to a plant from Silhet, which he sent to the Horticultural Garden in 1824, the very year in which he received *E. palatiferum* in the Calcutta Garden; but the *Register* figure is totally unlike the plant subsequently described by Nees as *E. crenulatum* (*Wall. Pl. As. Rar.*, iii. 107), in having a small regular corolla with acute lobes, and is probably an *Asystasia* in a starved state. T. Anderson, in his enumeration of the East Indian Acanthaceæ (*Journ. Linn. Soc.*, v. ix. p. 524), throws no light on the subject.

Under these circumstances it appears to me best to retain the name *palatiferum*, as being that which Wallich applied to this plant, which he figures and describes well. It is further to be observed that Nees errs in putting *E. cinnabarinum* and this plant (his *crenulatum*) in the section of the genus with the corolla limb equal, it being strongly bilabiate in both; in so doing he has followed the *Register* plate, and not the specimens he has so named.

The subject of our plate was sent to Kew from the Calcutta Botanic Garden, and flowered in April of last year; it belongs to the var. *glandulosum*, in which the glandular pubescence of the inflorescence extends to the upper branches, and which inhabits the Malayan Peninsula.

Descr. A small erect shrub; branches terete, glabrous or slightly glandular-pubescent. *Leaves* petioled, four to six inches long, blotched in our plant with white, quite entire or obscurely crenulate. *Spikes* terminal, glandular-pubescent, simple or branched at the base, recurved, four to seven inches long, many-flowered. *Flowers* subsecund, fascicled at regular intervals; bracts subulate, one-sixth to one-quarter of an inch long. *Calyx-segments* linear-subulate, acuminate, one-third inch long or more. *Corolla-tube* very slender, one inch long, pale; limb three-quarters to one and a quarter inches broad, flat, 2-lipped, lilac or scarlet, with a yellow spot on the lower lip; upper lip of two erect linear-oblong obtuse lobes; lower with one orbicular mid-lobe, and two broadly oblong lateral ones, all rounded at the tip. *Anthers* blue.—*J. D. H.*

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* Exanthemum *crenulatum* of this work (Tab. 5440) is a species of *Asystasia*.

W.H. ch. del. et lith.

Vincent Brooks Day & Son Lith

Tab. 5958.

CŒLOGYNE lentiginosa.

Native of Moulmein.

Nat. Ord. Orchidaceæ.—Tribe, Malaxideæ.

Genus, Cœlogyne, *Lindl.*; (*Lindl. Fol. Orchid. Cœlogyne*, p. 1).

Cœlogyne *lentiginosa*; caudice repente valido rigido, pseudobulbis erectis sessilibus anguste ellipticis compresso-trigonis vaginis ovatis acutis carinatis duplo longioribus, foliis lanceolatis petiolatis, racemo ascendente laxifloro, bracteis cymbiformibus ovaria superantibus, sepalis petalisque conformibus pallide viridibus oblongo-lanceolatis acuminatis carinatis recurvis, labello albo croceo variegato, lobis lateralibus brevibus rotundatis, intermedio breviter late unguiculato late trulliformi apice recurvo marginibus crispatis disco anguste tri-lamellato.

Cœlogyne fuliginosa, *Lindl. Fol. Orchid. Cœlogyne*, p. 3.

A very little known plant, though imported many years ago from Moulmein by Messrs. Veitch, probably through their indefatigable collector Thos. Lobb, and of which I find a few dried flowers in Lindley's Herbarium, dated December, 1848, received from Messrs. Veitch. Describing it from the flowers alone for his "Folia Orchidacea" in 1854, Lindley naturally included it in his section of the genus *Flaccidæ*, with pendulous racemes, whereas it really belongs to the much more extensive section of *Erectæ*, with ascending or erect racemes. The specimen here figured was communicated by Messrs. Veitch, with whom it flowered in December of last year.

Descr. *Stem* very stout, creeping, as thick as a swan's quill, rooting into the earth, clothed with rigid brown scales. *Pseudobulbs* close placed, sessile, erect, two to three inches long, by two thirds to three-quarters of an inch wide, trigonous, compressed, narrowly elliptic, truncate, green, smooth, edges obtuse; sheaths reaching about halfway up the pseudobulb,

ovate, acute, keeled, brown, scarious, appressed. *Leaves*, two at the top of the pseudobulb, six to seven inches long, erect, recurved above the middle, acute, narrowed into a short petiole, obscurely nerved, keeled at the costa beneath, bright green; articulate at the base with a globose joint or internode, that persists in the old pseudobulbs. *Raceme* produced at the base of the last-formed pseudobulb, ascending from its base, where it bursts through the sheath; peduncle stout, stiff, ascending, clothed with broad obtuse convolute green scales; rachis erect, slender, flexuous, floriferous from the base upwards, about 5-flowered. *Flowers* one and a half inch diameter, distichous; bracts two thirds inch long, horizontal, cymbiform, exceeding the ovary, membranous. *Sepals* and *petals* similar, linear-oblong or lanceolate, acuminate, recurved, keeled, pale yellow-green. *Lip* rather longer than the sepals, white with a broad ochreous blotch on the mid-lobe, the margins of the lateral lobes brown and as well as the disk freckled with brown; lateral lobes rounded; mid-lobe with a broad flat claw, broadly trowel-shaped, tip acuminate recurved, margins undulate, disk with three slender crenate ridges, of which the middle one is shortest. *Column* slender, narrowly winged.—*J. D. H.*

Fig. 1, Column; 2, lip:—*both magnified.*

W Fitch del et lith

Tab. 5959.

SENECIO PULCHER.

Native of Uraguay.

Nat. Ord. Compositæ—Tribe, Senecionideæ.

Genus Senecio, *Linn.*; (*De Candolle, Prod.*, vol. vi. p. 340).

Senecio *pulcher*; annuus, arachnoideus, caule cylindrico robusto simplici v. ramoso, foliis crasse herbaceis oblongo-lanceolatis irregulariter lobulatis lobulis crenato-dentatis radicalibus breviter petiolatis caulinis sessilibus costa nervisque crassis, pedunculis bracteatis, capitulis maximis corymbosis, involucri latissime campanulati foliolis crassis oblongo-lanceolatis subacutis ommino viridibus exterioribus numerosis interioribus dimidio brevioribus, ligulis 20-30 latis purpureis disco aureo ter longioribus.

Senico pulcher, *Hook. and Arn. in Hook. Journ. Bot.*, vol. iii. (1841) p. 337.

Certainly the handsomest Groundsel hitherto discovered, and truly designated by its original describers, and this from dried specimens that had lost all their beauty, as "a splendid plant, one to four feet high, with flowers two inches and more in diameter, the ray purple." It was discovered at the foot of the Sugar-Loaf Mountain, near Maldonado, and at Aldoa, west of Portalegre, in S. Brazil, by that indefatigable traveller and gardener, Tweedie, nearly forty years ago, and there are also specimens in the Hookerian Herbarium, gathered on grassy hills near Maldonado by Mr. Fox, late British Minister in Uraguay.

The introducer of the plant into England is Mr. J. Tyerman, formerly of Kew, and for many years the skilful and energetic Superintendent of the Liverpool Gardens; now of Penlee Tregooney, in Cornwall, where he raised it from seed sent from Buenos Ayres, flowered it in November 1871, and sent it to Kew for determination.

Descr. Annual, very robust, one to four feet high, bright-green, sparingly clothed with lax cobwebby wool, especially

on the involucre. *Stem* simple or branched, cylindric, smooth, as thick as a swan's quill. *Leaves* four to ten inches long, thick and herbaceous, oblong-lanceolate, subacute, irregularly lobulate, with crenate-toothed lobules ; radical shortly petioled, cauline sessile, semi-amplexicaul, with slightly decurrent bases, midrib and few principal nerves very stout, venules none or inconspicuous. *Heads* in branched corymbs, two to three inches in diameter, very bright red-purple, disk golden. *Peduncles* bracteate, stout, spreading; bracts one-half to one inch long, ovate-lanceolate, entire or toothed. *Involucre* broadly campanulate, bright green; scales numerous, oblong-lanceolate, subacute, thick ; outer (forming the calyculus), numerous, half as long as the inner. *Ray-flowers* twenty to thirty, spreading and recurved, ray linear-oblong, tip forked; pappus as long as the tube; style-arms truncate. *Disk-flowers* funnel-shaped, lobes short, erect; pappus half as long as the tube. *Achene* unripe, glabrous, terete, smooth.—*J. D. H.*

Fig. 1, Flower of ray; 2 ditto of disk; 3 pappus hair :—*all magnified.*

Tab. 5960.

CORYNOSTYLIS Hybanthus.

Native of Para.

Nat. Ord. Violaceæ.—Tribe, Violeæ.

Genus, Corynostylis, *Mart.*; (*Benth. and Hook. Gen. Plant.*, vol. i. p. 116).

Corynostylis *Hybanthus;* caule fruticoso scandente, foliis alternis elliptico- v. ovato-oblongis acuminatis integerrimis serratisve, floribus solitariis racemosis v. corymbosis gracile pedicellatis, sepalis ovatis obtusis summo minore, calcare compresso semitorto obtuso.

Corynostylis Hybanthus, *Mart. and Zucc., Nov. Gen. and Sp. Pl. Bras.*, vol. i. p. 26, t. 17, 18. *Griseb. Fl. Brit. W. Ind.* 26.

C. Benthami, *Walp. Rep.* i. 223.

C. albiflora, *Linden;—Moore in Florist, January*, 1872, p. 9.

C. Carthagenensis et C. Guyanensis, *Karst. Fl. Colomb.*, vol. ii. p. 53 et 127.

Calyptrion Aubletii, *et* C. Berteri, *Ging. in DC. Prodr.*, vol. i. p. 289.

C. nitidum, *Benth. in Hook. Journ. Bot.*, vol. iv. p. 106.

Viola Hybanthus, *Aubl. Pl. Guyan.*, vol. ii. p. 811, t. 319; *Maycock, Fl. Esseq.*, p. 123 (*non Willd.*).

V. lauriflora, *Smith in Rees Cyclopædia.*

Ionidium Aubletii, *Roem. et Schultes Syst.*, vol. v. p. 397.

A stove shrub, imported by Mr. Linden from Para, very attractive from its climbing habit, abundance of snow-white sweet-smelling blossoms, and bright glossy foliage. Though belonging to the same Natural Order as the Violet, and closely connected with that genus, its habit and the form of its flower more resemble those of the racemose Indian Balsams. The curious twist of the spur has been observed by Martius alone in his careful description of this plant. It is a most variable species, and I believe that all the so-called species the genus contains, and which are hitherto described, are referable to

one, which extends from the Amazon (which it ascends to the junction of the Rio Negro), to Venezuela, Columbia, Guatemala, and St. Vincent; but which, curiously enough, has not been detected in Trinidad. The *C. albiflora* of the *Florist* is clearly the same, with the articulation of the pedicels and bracteoles omitted by the artist. The specimen here figured flowered in January of the present year in Mr. Bull's establishment at Chelsea.

Descr. A slender, glabrous climber; branches terete, spotted with white. *Leaves* alternate, two to five inches long, elliptic-oblong or ovate, or orbicular, obtuse or acute, quite entire or serrulate, bright grassy-green, paler beneath, nerves reticulate; petiole one quarter to half an inch long. *Stipules* small, subulate, deciduous. *Flowers* usually in axillary subcorymbose racemes, rarely fascicled or solitary; rachis of raceme half to one inch long, strict, erect, finely pubescent; bracts minute, deciduous. *Flowers* two inches long, pure white, odorous; pedicels three inches long, capillary, jointed above the middle, 2-bracteolate. *Sepals* five, small, ovate, obtuse, quite entire, ciliate, the upper smaller. *Petals* five, two upper smallest, obovate, obtuse, ciliate, callous at the base; two lateral twice as large, spreading, obliquely obovate; lower very large, limb broader than long, obcordate; spur broad, obtuse, compressed, with a half-twist. *Stamens* five, the upper free, the four others connate in pairs, each pair produced into a bearded appendage at the base on the adjacent sides. *Ovary*, glabrous or pilose. *Capsule* one and a half inches long, elliptic, acute.—*J. D. H.*

Fig. 1, Flower with the lateral and lower petals removed; 2, side stamens and spur; 3, ovary; 4, transverse section of ditto:—*all magnified.*

Tab. 5961.

BOLBOPHYLLUM LEMNISCATUM.

Native of Moulmein.

Nat. Ord. Orchidaceæ.—Tribe, Dendrobieæ.

Genus, Bolbophyllum *Thouars ; (Lindl. Gen. and Sp. Orchid.*, p. 47).

Bolbophyllum *lemniscatum ;* pseudobulbis depresso-globosis grosse tuberculatis, foliis 2-3 e basi pseudobulbi enatis elliptico-lanceolatis, scapo apice cernuo gracillimo supra medium vagina longissima subinflata aucto, spica brevi pendula, floribus parvulis imbricatis, sepalis subæqualibus supra medium connatis ovato-rotundatis obtusis dorso infra apicem appendice pendula gracillima clavata e lamellis 10 longitudinalibus crenatis constante auctis, petalis minutis lineari-oblongis obtusis columnæ utrinque rostratæ appressis, labello brevi incluso linguæformi crasso obtuso convexo lævi.

Bolbophyllum lemniscatum, *Parish mss.*

A more singular little gem of an Orchid than this cannot well be imagined. Its curious glossy tubercled pseudobulbs, its capillary scape with the long inflated upper sheath, its pendulous spike of glistening minute flowers, and above all, its slender appendages that hang one from the back of each sepal, and which are as curious in structure as beautiful in colouring, together seem to mark it as the type of a new genus. This I should have named *Lemniscoa Parishii*, had not its discoverer seen reason to refer it to the heterogeneous genus *Bolbophyllum*, to which it is certainly very closely allied, but which appears to me to want a redistribution of its species. The elaborate structure of the appendages of the sepals deserves special notice. Each consists of a narrow club-shaped very flaccid body, three to four times as long as the flower, and is gradually narrowed into a filiform pedicel. On a superficial examination it appears to be 10-sided, but on a transverse section is proved to consist of a

capillary axis, from which radiate ten longitudinal crenate undulate plates, of equal breadth and extreme delicacy. The whole organ is not more than one-sixth to one-fourth of an inch long, of a brilliant red-purple colour transversely banded with white. These appendages suggested the very appropriate name of *lemniscatum* (from *lemniscus*, a coloured ribbon). Of their possible use I can form no conception; they fall off as the flower expands.

The Rev. C. Parish discovered this plant flowering on an old shingle roof at Zwakabin, in Moulmein, in November, 1868, and sent plants to the Royal Gardens in 1870, which flowered in July of the present year.

Descr. *Pseudobulbs* a half to three-quarters of an inch in diameter, depressed, tubercled. *Leaves* in a tuft of three or four, springing from the base of the pseudobulb, one and a half to two inches long, elliptic-lanceolate, acute, deciduous. *Scape* also from the base of the pseudobulb, four to six inches high, capillary, with two or three short sheaths below the middle, and one very long slender slightly inflated one above it. *Spike* pendulous from the curved tip of the scape, three-quarters of an inch long, oblong; bracts small, subulate. *Flowers* one-twelfth to one-tenth of an inch long, crowded, imbricate. *Ovary* short. *Sepals* dark purple, green at the base, coriaceous, connivent, united below the middle, setose, with long spreading hairs, orbicular-ovate, obtuse, 3-grooved (appendages described above). *Petals* small, included, linear-lanceolate, obtuse, rather longer than and appressed to the column, white with a purple streak. *Lip* broadly ovate, recurved, convex, very obtuse, quite smooth, dark-blue purple. *Column* with a sharp decurved prominent beak on either side.—*J. D. H.*

Fig. 1 and 2, flowers; 3, transverse section of appendage; 4, column, petals and lip; 5, column; 6 and 7, pollen:—*all magnified.*

Vincent Brooks Day & Son lith.

Tab. 5962.

MASDEVALLIA IGNEA.

Native of New Grenada.

Nat. Ord. Orchidaceæ.—Tribe, Pleurothallideæ.

Genus, Masdevallia, *Ruiz and Pavon;* (*Lindl. Gen. and Sp. Orchid.*, p. 192).

Masdevallia *ignea;* caulibus fasciculatis, foliis longe petiolatis ellipticis obtusis coriaceis, scapis gracilibus folio longioribus, floribus decurvis, sepalis basi in tubum subcylindricum curvem gibbum connatis, dorsali inter sinum lateralium deflexo e basi triangulari elongato-subulato, lateralibus maximis ellipticis acutis marginibus recurvis, petalis parvis lineari-oblongis obtusis, basi uno latere producto, labello unguiculato linguæformi basi subcordato antice crenulato, columna exalata, androclinio serrulato.

Masdevallia ignea; *Reichb. fil.* in *Gardener's Chronicle, Nov.* 1871, p. 1482.

A very near ally of *M. Veitchiana* (Tab. nost. 5739), and of as vivid a colour, but differing remarkably in the form of the leaf, which is also long-petioled, and in the shape of the sepals and their disposition and curvature. According to Reichenbach, fil. (who quotes Mr. Day for the information), it was originally imported from New Grenada in March, 1870, and sold in Stevens's sale-rooms. That learned Orchidologist describes it from specimens that flowered in Messrs. Day's, Branteghem's, and Veitch's collections. That figured here is from a large flowered form which flowered in Mr. Bull's establishment in February of the present year. The colour, though not so deep as that of the *Veitchiana*, is quite as vivid, and more resembles that of cinnabar, or, as Reichenbach says, a "dazzling scarlet mixed with orange-scarlet, too dazzling to look at long." It thus suggests a transition from the red heat of *Veitchiana* to a white heat. As in the latter species, this lustre—or water, as a jeweller would term it—is due to the refractive power of the fluid

contained in the superficial bladdery cells of the sepals, and is perhaps unsurpassed for brilliancy in the vegetable kingdom.

DESCR. *Stems* densely tufted, rigid, erect, sheathed at the base, each bearing a solitary leaf and flower. *Leaf* elliptic or elliptic-obovate, obtuse or notched, very coriaceous, bright deep green, pale beneath, blade three inches long, narrowed into a channelled petiole one to one and a half inches long. *Scape* slender, rigid, clothed at intervals with truncate sheaths, of which the uppermost is one inch long, lower somewhat spathaceous, compressed, and reaching nearly to the ovary. *Flower* one and a half to two inches long from the base of the ovary to the tips of the sepals, horizontal and decurved. *Ovary* one-third inch long. *Sepals* united at the base into a curved gibbous tube, half inch long by two-thirds inch in diameter, pale orange-red outside, bright cinnabar-red inside; upper suddenly contracted from a triangular ovate base to a long slender point, bent down into the fork between the lateral sepals, than which it is rather shorter; lateral sepals elliptic-oblong, acute, rather obliquely incurved, convex above with recurved margins, 3-nerved. *Petals* very small, wholly included, appressed to the sides of the column, linear-oblong, obtuse, base auricled in front, white, with a faint purple streak. *Lip* equalling the petals, included, linear-oblong, obtuse, recurved, cordate at the base, white, with a pale purple blush. *Column* erect, margins not winged.—*J. D. H.*

Fig. 1, Flower with the sepals removed; 2, the same with the petals removed; 3, pollen:—*all magnified.*

Tab. 5963.

STAPELIA sororia.

Native of the Cape of Good Hope.

Nat. Ord. Asclepiadieæ.—Tribe, Stapelieæ.

Genus, Stapelia, *Linn.*; (*Decaisne in DC. Prodr.*, vol. viii. p. 652).

Stapelia (Stapletonia) *sororia*; caulibus erectis, ramis erectis v. divaricatis 4-gonis inter angulos dentatos depressis, dentibus remotis acutis incurvis, pedunculis solitariis v. binis ex ramulis junioribus provenientibus decurvis dein adscendentibus, corolla ampla atro-purpurea 5-fida fauce lobisque densissime et longe villosis, lobis acutis rugosis rugis basin versus luteis.

Stapelia sororia, *Masson, Stap. Nov.*, p. 23, t. 39; *Jacquim. Stap. Hort. Vind. Descript.* t. 22, 36, 37. *Lodd. Bot. Cab.* t. 94. *Decaisne in DC. Prodr.*, vol. viii. p. 652.

One of the earliest-known species of the curious genus to which it belongs, introduced into England by Masson, a collector for Kew, though it nowhere appears in the first or second editions of the Hortus Kewensis. Masson who first described it, in 1796, states that it flowered in his garden at the Cape of Good Hope in 1792, and in the Royal Gardens, Kew, in 1797. The said Francis Masson was a gardener at Kew, and was, at the instigation of Sir Joseph Banks, sent to the Cape, to collect live plants for the King (George III.): he left England in 1772, and remained in South Africa till 1775, when he returned on leave to England, and spent his vacation in publishing the beautiful drawings he had made of Stapelias in a small folio work, dedicated to the King, with figures and descriptions of forty-one species, all new to science, (there having been but two previously published from that country) and collected in the Karroo country chiefly by himself. In 1786 he returned to the Cape, and spent ten more years in collecting for Kew. Close upon ninety species of *Stapelia* are described in Decaisne's monograph of the genus,

in De Candolle's Prodromus, published in 1844, since which time many more have been discovered, but few figured. In 1811, forty-four species were cultivated at Kew, where there are now about thirty.

St. sororia varies much in robustness, size of flower, and in the number and extent of yellow ridges on the petals.

Descr. Pale green, glabrous. *Stems* six to ten inches high, with erect or horizontal branches one-third to two-thirds of an inch in diameter, rather depressed or channelled between the angles, which are toothed at intervals of about one-third to two-thirds of an inch, the teeth are soft and incurved. *Peduncles* solitary or twin, from the young shoots at the bases of the branches, decurved, with ascending tips, three to four inches long. *Flower* three to four and a half inches in diameter. *Calyx-lobes* triangular-ovate, acuminate. *Corolla* clothed on the surface and margins with long hairs, which are very dense towards the throat; lobes five, ovate, acuminate, transversely rugose, dark vinous purple, the folds towards the base bright orange-yellow. *Processes* of the *column* deep purple, exserted.—*J. D. H.*

Fig. 1, column:—*magnified.*

Tab. 5964.

ARISÆMA SPECIOSUM.

Native of the Eastern Himalaya Mountains.

Nat. Ord. Aroideæ—§ Arisareæ.

Genus, Arisæma, *Mart.*; (*Schott Prodr. Syst. Aroid.*, p. 24).

Arisæma (Trisecta) *speciosum*; folio solitario 3-foliolato, petiolo variegato, foliolis crassiuscule petiolulatis late ovato-cordatis caudato-acuminatis rubro-marginatis, pedunculo petiolo breviore, spatha purpurea late elliptico-ovata caudato-acuminata albo-vittata, appendice cylindracea inferne paulo incrassata in stipitem brevem attenuata apice subrepente in caudam longissimam capillarem flexuosam spatha pluries longiorem producta ovoideo ovario, stigmate subsessili, ovulis 3 basilaribus.

Arisæma speciosum, *Martius in Flora* 1831, p. 458; *Schott Prodr. Syst. Aroid.*, p. 27.

The moist forests of the temperate regions of the Himalaya abound in large, and even gigantic species of terrestrial Aroids, chiefly belonging to the genus *Arisæma*; of these, some twenty inhabit the provinces of Nepal and Sikkim, flowering in the spring, and exciting the attention of the most careless observer by their brilliant colouring in some cases, and by their curious forms in all. Two were figured in last year's volume of the Magazine (*A. curvatum*, Tab. 5931, and *A. concinnum*, Tab. 5914), both sent by Mr. Gammie (formerly of Kew, and now superintendent of the Sikkim Cinchona Plantations). To this energetic officer we owe the introduction of several more, and amongst them, of that here figured, which flowered in the Royal Gardens in March of the present year. Unfortunately, the genus is diœcious, and no opportunity has presented itself of fertilizing the females, which alone have appeared. The tubers may, however, be kept in a cold frame throughout the winter, like those of any other plant of similar habits and constitution.

The wonderful flexuous tail to the spadix, which I have

usually found lying on the ground, is the most striking feature of this and some closely allied species. Of its use, only a guess has been hazarded—that it may lead wingless insects into the spathe, and so to the stamens in one case, and to the ovaries in another, and thus effect the fertilization of the latter.

The great tubers are, as of allied species, used for food in times of famine, after maceration and fermentation to dissipate the acrid poisonous principle which they contain.

Descr. *Tuber* the size of a large potato. *Leaf* solitary; petiole sheathed at the base, dirty green mottled with brown, as thick as the thumb; leaflets three, petiolulate, six to eight inches long, broadly cordate ovate, long-acuminate, strongly nerved, deep green above with a blood-red edge, pale beneath; petiolules half to two-thirds of an inch long, laterally compressed, with blood-red edges and streaked sides. *Peduncle* lateral, two to three inches long, paler than the petiole and much more slender. *Spathe* five to six inches long; lower convolute portion cylindric, upper elliptic-ovate concave, with an acuminate recurved tip, deep purple inside, striped with white, greenish or paler purple outside. *Spadix* cylindric, contracted below into a short stipes, tip produced into a twisted and flexuous filiform tip, which is twenty inches long. *Ovaries* occupying about one to one and a half inches of the spadix, flagon-shaped or ovoid; stigma sessile, discoid; ovules 3, basal, erect.—*J. D. H.*

Fig. 1, Spadix:—*of the natural size*; 2, ovary; 3, vertical and 4, transverse section of ditto:—*all magnified.*

Tab. 5965.

VERONICA PARVIFLORA, VAR. ANGUSTIFOLIA.

Native of New Zealand.

Nat. Ord. Scrophularineæ.—Tribe, Veroniceæ.

Genus, Veronica, *Linn.*; (*Benth. in DC. Prodr.*, vol. x. p. 458.)

Veronica (Hebe) *parviflora*; frutex glaberrimus, foliis sessilibus lanceolatis elliptico-lanceolatis v. linearibus erectis v. patenti-recurvis carinatis acutis acuminatisve glaberrimis integerrimis, racemis foliis longioribus strictis v. paulo curvis elongatis caudato acuminatis pedunculatis multifloris puberulis, floribus parvis breviter pedicellatis, calycis parvi lobis ovatis oblongisve obtusis ciliolatis, corollæ tubo lobis oblongis obtusis æquilongo, capsula parva sepalis paulo longiore septicida.

Veronica parviflora, *Vahl Symb.*, vol. iii. p. 4; *Benth. in DC. Prodr.*, vol. x. p. 460; *Hook. f. Fl. Nov. Zel.*, vol. i. p. 192; *Handbook of N. Z. Flora*, p. 207.

Var. *angustifolia*; foliis anguste linearibus patenti-recurvis.

V. angustifolia, *A. Rich. Fl. Nouv. Zel.*, p. 187.

V. stenophylla, *Steud. Bot. Nomencl.*, Ed. ii.

A not uncommon New Zealand shrub, found throughout the two main islands, and, like its shrubby compatriots, varying excessively in stature, foliage, and colour of flower; apparently passing at one time into the still more common *V. salicifolia*, and at others into the rarer *V. macrocarpa* and *ligustrifolia*. It is best distinguished from both these latter by the long slender racemes, short obtuse calyx-lobes and small fruit. I have little doubt but that these and other New Zealand species hybridize extensively in their own country, and that when they are more copiously introduced into this, the difficulty of naming them will prove insuperable. The form of *parvifolia* here figured is that described by A. Richard as *V. angustifolia*, and was procured from the Royal Botanic Gardens of Edinburgh under the name of *linarifolia* in

1870; it flowered in the temperate house at Kew in July of 1871, and is a remarkably graceful greenhouse plant, of easy cultivation.

Descr. A small glabrous shrub; branches slender, erect, red-brown, as are the peduncle and the rachis of the racemes. *Leaves* two to three and a half inches long, sessile, spreading and recurved, narrow-linear, acute, keeled, quite entire, dark green and channelled above, pale beneath. *Racemes* opposite, axillary, spreading and recurved, longer (often twice as long) as the leaves, densely very many flowered, tapering to the extremity. *Flowers* a quarter of an inch in diameter, shortly pedicelled; bracteoles minute. *Calyx-lobes* very short, oblong, obtuse, minutely ciliate. *Corolla* pale lilac; tube rather longer than the lobes, and much exceeding the calyx; lobes spreading, dorsal largest, anterior smallest, almost orbicular, all obtuse. *Stamens* much exserted; anthers red-brown. *Style* exserted; stigma subentire.—*J. D. H.*

Fig. 1, Flower; 2, calyx and style :—*both magnified.*

W. Fitch, del et lith.

Vincent Brooks Day & Son, Imp

Tab. 5966.

RESTREPIA elegans.

Native of Caraccas.

Nat. Ord. Orchidaceæ.—Tribe, Malaxideæ § Pleurothallæ.

Genus, Restrepia, *Kunth;* (*Lindl. Fol. Orchid.*, Restrepia).

Restrepia *elegans;* caulibus cæspitosis vaginis amplis imbricatis compressis albis scariosis tectis, folio sessili late elliptico coriaceo apiculato, pedunculis axillaribus solitariis v. binis filiformibus folium æquantibus v. superantibus, sepalo dorsali lanceolato in caudam elongatam apice clavellatam producto albo purpureo-lineato, lateralibus in laminam amplam oblongam apice emarginatam concavam flavam purpureo punctatam connatis, petalis minutis sepalo dorsali consimilibus, labello parvo panduriformi emarginato ultra medium eroso basi utrinque appendicula setacea aucto.

Restrepia elegans, *Karst. Auswahl neuer und Gewächse Venezuelas*, p. 8, t. 2; *Lindl. Fol. Orchid.*, Restrepia, p. 2.

A lovely little Orchid, closely allied to, and indeed the Venezuelan representative of the Andean *R. antennifera*, a plant which was long regarded as the only species of the genus, and known only from the plate in Humboldt's and Bonpland's "Nova Genera et Species" (vol. i. p. 293, t. 94) and which has been cultivated by M. Linden, of Brussels, but not, as far as I am aware, in this country (see Reichb. f. in Gard. Chron., 1869).

Since that period a considerable number of species have been discovered and described, most of them presenting the curious antenna-like form of dorsal sepal and petals, and all inhabiting the mountains of Venezuela and the Andes, from Guatemala to New Granada.

R. elegans inhabits mossy tree trunks at elevations of 5–6000 feet in the province of Caraccas, whence there are dried specimens in the Hookerian Herbarium, collected near the colony of Tovar, by Fendler. I am indebted to Messrs. Veitch for the specimen here figured, which flowered in February last.

May 1st, 1872.

Descr. *Stems* tufted, epiphytic, two to three inches high, clothed with distichous, compressed, elliptic-oblong, obtuse, pale, rigidly scarious scales. *Leaf* one to one and a half inches long, almost exactly elliptic, obtuse or subacute, deep green above, pale beneath, very coriaceous, flat, smooth. *Peduncles* usually in pairs, rather longer or shorter than the leaf, very slender, erect, rigid, naked; bracts small, oblong, acuminate, compressed, embracing the short ovary. *Flower* one and a half to two inches long from the tip of the dorsal to that of the lateral sepals, horizontal. Dorsal *sepal* erect, lanceolate, produced into a straight tail as long as itself, which is yellow and clubbed at the tip, white streaked with purple; lateral sepals connate into an oblong emarginate concave blade, that subtends the lip, yellow, spotted with purple. *Petals* like the dorsal sepal but only half the size, spreading. *Lip* half the size of the connate lateral sepals, and of the same colour, but edged with red; oblong but contracted in the middle, and abruptly at the base into a narrow claw; base concave, margins erose beyond the middle, and furnished on each side towards the base with a slender subulate auricle; tip emarginate; surface echinulate. *Column* slender, arched, white streaked with purple. *Pollen-masses* 4, sessile.—*J. D. H.*

Fig. 1 and 2, Flowers; 3, lip and column; 4, front view of lip; 5, column; 6, pollen:—*all magnified.*

W Fitch del et lith

Vincent Brooks Day & Son Imp

Tab. 5967.

SAXIFRAGA Stracheyi.

Native of the Himalaya Mountains.

Nat. Ord. Saxifragaceæ.—Tribe, Saxifrageæ.

Genus, Saxifraga, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 635).

Saxifraga (Bergenia) *Stracheyi*; rhizomate crasso repente, foliis amplis obovatis obovato-cuneatisve grosse crenatis basi angustatis v. cordatis, petiolo basi dilatato, panicula glanduloso-pubescente, calycis lobi 5 rotundati, petalis spathulatis obovatis v. orbicularibus roseis.

Saxifraga Stracheyi, *Hook. f. and Thoms. in Journ. Linn. Soc. Lond.*, 1857, p. 61.

? S. ciliata, *Lindl. in Bot. Reg.*, 1843, t. 65.

A near ally of the extensively cultivated *S. ligulata*, Wallich, of the Himalaya, and very probably a form of that plant; approaching it through the β *ciliata* of *S. ligulata* (figured as *S. ciliata* in Tab. 4915 of this work); and in the fact of our garden specimens having cordate leaves, which is very rarely the case with wild ones of *Stracheyi*, but uniformly so with both wild and cultivated ones of *S. ligulata*. In a living state there is, however, no difficulty in distinguishing between the typical forms of *Stracheyi*, *ciliata*, and *ligulata*, of which the former bears the palm for the fine bright pink hue of its petals, and the deep red of the ovary.

S. Stracheyi is a native of the upper elevations of the Western Himalaya and Western Tibet; ascending from 10–14,000 feet, and growing on moist rocky ledges. It varies greatly in size, according to elevation and moisture.

The specimen here figured has flowered in the Royal Gardens, on an open rock-work, in March, during several years past. The plant was raised from seed sent home by Captain, now General, Strachey, F.R.S., from Kumaon, in 1851.

Descr. *Rootstock* stout, creeping, as thick as the thumb.

Leaves closely sheathing at the base, with orbicular stipular sheaths, obovate or obovate-cuneate, three to six inches long, narrowed into the short stout petiole or cordate at the base, obtuse, bright green, margin irregularly toothed, ciliate. *Flowering-stem* four to eight inches high, stout, succulent; panicle much branched, drooping, more or less glandular-pubescent; bracts deciduous. *Flowers* three-quarters to one inch diameter. *Calyx-tube* hemispheric; lobes orbicular. *Petals* obovate-spathulate or orbicular, pink. *Stamens* ten, red; anthers primrose yellow. *Ovary* of three crimson carpels; styles narrow, conical; stigmas capitellate.—*J. D. H.*

Fig., Flower with the petals removed:—*magnified.*

W Fitch, del et lith.

Vincent Brooks Day & Son Imp

Tab. 5968.

DENDROBIUM AMETHYSTOGLOSSUM.

Native of the Philippine Islands.

Nat. Ord. Orchidaceæ.—Tribe, Malaxideæ § Dendrobieæ.

Genus, Dendrobium, *Swartz ;* (*Lindl. Gen. et Sp. Orchid.*, p. 74).

Dendrobium (Pedilonum) *amethystoglossum ;* caulibus fasciculatis strictis erectis elongatis cylindraceis, foliis ?, racemis alternis breviter pedunculatis pendulis oblongis dense multifloris, floribus imbricatis, bracteis minutis, sepalis petalisque consimilibus late obovato-oblongis acutis eburneis, sepalis lateralibus basi connatis postice in calcar rectum validum obtusum ovario longiore productis, labello oblongato anguste spathulato cymbiformi abrupte apiculato læte purpureo marginibus lateralibus incurvis, basin versus supra unguem callo triangulari retrorso aucto, columnæ brevis auriculis obscuris erectis 2-dentatis.

Dendrobium amethystoglossum, *Reichb. f. in Gard. Chron.* 1872, p. 109.

This remarkable Dendrobe presents the contrast of great beauty of inflorescence and flower, with a singularly ugly habit of growth. On the one hand, nothing can well be uglier than the thick, clumsy, slightly flexuous, naked stems, two to three feet long, that stick straight up from the tree-trunk it inhabits, and which further present, after flowering, the persistent naked remains of the old racemes, projecting right and left from the internodes ; on the other, it is difficult to describe the ivory-whiteness of the sepals and petals, and the lucidity of the amethystine purple on the lip.

D. amethystoglossum is a native of the Philippine Islands, whence it was imported by Messrs. Veitch, through their collector, G. Wallis, amongst a lot of *D. taurinum ;* it flowered in February last, presenting three racemes on the stem at once.

Descr. *Stems* fascicled, two to three feet high, stout, one inch in diameter, slightly flexuous, dirty green, obscurely channelled, tapering to the apex ; internodes about two inches long, clothed with appressed deciduous sheaths. *Leaves* not

seen. *Racemes* three to five inches long, ovoid-oblong, obtuse, pendulous from alternate nodes, shortly peduncled, very many and dense-flowered, the flowers imbricating before full expansion; peduncle and rachis green; bracts minute; pedicels half an inch long. *Flowers* one and a half inches in diameter, ivory-white except the amethystine purple end of the limb of the lip. *Sepals* and *petals* nearly equal, obovate-oblong, acute, spreading. *Lip* cymbiform, elongate linear-spathulate in outline, with a short claw, tip apiculate, margins incurved, except toward the apex; base beyond the claw with a fleshy triangular appendage, that points backwards. *Column* short, the sides produced upwards into two short toothed wings.—*J. D. H.*

Fig. 1, Lip, column, and ovary; 2, front view of lip; 3, front view of column, &c.:—*all magnified.*

W. Fitch del et lith

Vincent Brooks Day & Son lith

Tab. 5969.

FRITILLARIA TULIPIFOLIA.

Native of the Caucasus.

Nat. Ord. Liliaceæ.—Tribe, Tulipeæ.

Genus, Fritillaria, *Tourn.*; (*Kunth Enum. Pl.*, vol. xiv. p. 246).

Fritillaria *tulipifolia*; glauca, caule basi nudo sursum paucifolio unifloro, foliis 3-4 sparsis ellipticis v. elliptico-lanceolatis subacutis supremis angustis, flore solitario nutante non tessellato, perianthii segmentis oblongis obtusis intus spadiceo-purpureis, exterioribus dorso glauco-azureis, interioribus dorso fascia media glauca instructis, nectario lineari-oblongo viridi, filamentis gracilibus antheris linearibus flavis duplo longioribus, ovario cylindrico, stylo sursum lente incrassato, stigmate 3-lobo.

Fritillaria tulipifolia, *M. Bieb. Flor. Taur. Cauc.*, vol. i. p. 270, *Suppl.*, p. 263, *et Plant. Ross.*, vol. i. t. 21; *Kunth Enum. Pl.*, vol. iv. p. 247.
F. caucasica, *Adams in Web. and Mohr. Beitr.*, i. 51.

Theresia tulipifolia, *Klatt in Otto's Hamburg Garten-und-Blumenzeit*, vol. xvi. p. 439 (*excl. Syn.*).

A very elegant little Fritillary, apparently common in the mountains of Georgia and Armenia, and extending thence to those of the Taurus in Asia Minor. It has also been described as a native of Greece and Siberia, and even of the Pyrenees, under the names of *F. persica* β *pyrenaica*, Sibth., *F. racemosa*, Miller, &c., but without living specimens to compare, I dare not venture to unite these species of so difficult a genus. Klatt refers *F. obliqua*, Gawler (Bot. Mag., tab. 857), to the same series, but that is a racemose species with narrow twisted leaves and violet coloured flowers, and has, I apprehend, nothing to do with this, and is probably a form of *F. persica* (Bot. Mag., tab. 1537.)

As a species *F. tulipifolia* is remarkable for its glaucous blue hue, and the singular colour of the flowers, which resemble a tulip in shape, and have a chalky appearance outside. According to native specimens, it varies greatly in stature and in the size of all its parts.

May 1st, 1872.

Our specimen flowered in the open border at Kew in March of the present year.

Descr. Very glaucous throughout, except the inner surface of the perianth-segments. *Stem*, in our specimens, four to six inches high (two to eight in native ones), slender, leafless below, but there clothed with appressed sheaths. *Leaves* three to four on each stem, one and a half to two and a half inches long, elliptic or elliptic-lanceolate, subacute, concave, sessile, straight, sheath very short, nerveless, pale green; upper linear lanceolate. *Flower* solitary, very variable in size, three-quarters to one and a quarter inches long, nodding, exactly tulip-shaped. Perianth-segments subequal, oblong, obtuse or obtusely apiculate, rusty brown purple within, not tessellated; the outer dark glaucous blue streaked with the same purple outside; the inner with a broad glaucous blue band down the back; nectary a linear-oblong green gland. *Stamens* erect, filaments slender, twice as long as the narrow linear obtuse yellow anthers. *Ovary* cylindric, sessile by a broad base; style slender, gradually thickened upwards to the obscurely three-lobed stigma. *Capsule* pyriform erect.—*J. D. H.*

Fig. 1, Bulb and 2, petal:—*both natural size;* 3, stamen and pistil; 4, pistil; 5, transverse section of ovary:—*all magnified.*

W Fitch del et lith.

Vincent Brooks Day & Son Imp

Tab. 5970.

CYPRIPEDIUM LONGIFOLIUM.

Native of Central America.

Nat. Ord. Orchideæ.—Tribe, Cypripedieæ.

Genus Cypripedium, *Lindl.*; (*Endl. Gen. Plant.*, vol. i. p. 220).

Cypripedium (Selenipedium) *longifolium*; foliis distichis elongato-ligulatis longe attenuato acuminatis carinatis, scapo sparse puberulo multifloro bracteato, bracteis spathaceis lanceolatis acuminatis ovarium superantibus, sepalo dorsali ovato-lanceolato obtuso virescente, lateralibus in laminam late ovatam labello æquilongam suppositam obtusam connatis, petalis sepalis multo longioribus anguste elongato-lanceolatis virescentibus albo-marginatis linea rubra intramarginali percursis, labello oblongo-ovoideo obtuso e viridi purpurascente, ore amplo antice emarginato, lateribus lobulatis, staminodio triangulari-cordato, lateribus tumidis purpureo-villosis, ovario 3-loculari.

Cypripedium longifolium, *Warsz. et Rchb. f. in Bot. Zeit.* 1852, p. 690.
Selenipedium longifolium, *Rchb. f. Xenia. Orchid.*, vol. i. p. 3; *Beitr. Orchid. Cent. Amer.* p. 44; *Gard. Chron.* 1869, p. 1206.

By far the stateliest species of the genus hitherto discovered, and an exceedingly handsome plant, though by no means remarkable either for colour or form, as compared with some of its congeners. Its three-celled ovary places it in the genus *Selenipedium* of Reichenbach f., and its habit in close affinity with *C. caricinum*, (*Pearcii*, Hort.: Tab. nost. 5466); to which genus (which we are disposed rather to regard as a subgenus,) also belong *C. caudatum*, Lindl., and seven other species enumerated by Reichenbach, all of them American.

C. longifolium was discovered by M. Warszewicz, in the Cordillera of Chiriqui, in Central America, at an elevation of 5–8000ft, and introduced into Europe about ten years ago. The superb specimen here figured was exhibited at the Horticultural Society in January of the present year, by Mr. Bull, F.R.S., of Chelsea, and kindly by him placed at the disposal of the artist of the Botanical Magazine for figuring.

June 1st, 1872.

Descr. *Leaves* distichous, recurved, eight to twelve inches long by two-thirds of an inch broad, narrow ligulate for two-thirds of their length, then gradually tapering to an acuminate point, sharply keeled, the lower third complicate, bright green. *Scape* two feet high, stout, dark red-purple, sparingly pubescent, bracteate; bracts cauline and floral two to four inches long, spathaceous, lanceolate from a short sheathing base, yellow green with purplish edges, the floral exceeding the ovary. *Ovary* very slender, 3-celled, dark red-purple. *Flower* seven inches across the petals, and four from the tip of the dorsal sepal to that of the lip. *Sepals* pale yellow-green, faintly streaked with purple; dorsal ovate-lanceolate, obtuse; lateral connate into an ovate obtuse blade placed under the lip and shorter than it. *Petals* spreading, very narrowly lanceolate, slightly twisted, pale green, with a white border and red intramarginal band. *Lip* two inches long, oblong, green and dull purple, hairy within, tip rounded; mouth truncate and notched in front, its sides lobed and auricled, the inflected margins yellow, with pale purplish dots. *Staminode* broadly triangular-cordate, with raised purple-villous sides.—*J. D. H.*

Fig. 1, Lateral, and 2, front view of column:—*both magnified.*

Tab. 5971.

GREVILLEA ROSMARINIFOLIA.

Native of New South Wales.

Nat. Ord. Proteaceæ.—Tribe, Grevilleæ.

Genus Grevillea, *R. Br.*; (*Benth. Fl. Austral.*, vol. v. p. 417).

Grevillea (Ptychocarpa) *rosmarinifolia*; frutex erectus, ramulis tomentosis, foliis confertis suberectis lineari-subulatis lanceolatisve mucronatis marginibus revolutis, subtus albo-sericeis, racemis brevibus subglobosis densifloris terminalibus v. ramulis abreviatis lateralibus, rachi glabra, perianthii brevis glabri coccinei tubo basi lato gibbo intus barbato, limbo revoluto obliquo viridi, disci glandula semicirculari, ovario sessili glabro, stylo basi barbato, stigmate laterali, capsula angusta incurva.

Grevillea rosmarinifolia, *A. Cunn. in Field's N. S. Wales*, p. 328; *R. Br. Prodr. Suppl.*, p. 20; *Meissn. in DC. Prodr.*, vol. xiv. p. 363; *Sweet Flor. Austral.*, t. 30; *Lodd. Bot. Cab.*, t. 1479; *Benth. Fl. Austral.*, vol. v. p. 445.

G. riparia, *Sieb. in Roem. and Schult. Syst.*, vol. iii., *Mant.*, p. 278.

A robust ornamental evergreen, which, like the subject of Tab. 5973, thrives admirably in the damp mild climate of the West of England, but is only suited for a greenhouse or sheltered wall in the more Eastern counties. Living specimens in full flower were communicated by Dr. Woodman of the Exminster Nurseries (Messrs. Lucombe, Pince and Co.) in February of the present year, where it formed a luxuriant shrub three feet high, with deep green foliage starred with blood-red racemes of flowers.

It was discovered by A. Cunningham on the north bank of Cox's River, N. S. Wales, in 1822, along with *G. sulphurea* and *G. canescens* (Tab. nost. 3185), and was probably introduced into England shortly afterwards, for a weak and starved specimen is figured in *Loddige's Botanical Cabinet* as having flowered in the celebrated Hackney Nurseries.

Descr. An erect shrub, five to six feet high; branches short, erect, tomentose. *Leaves* crowded, sub-bifarious,

pointing obliquely upwards, one to two inches long, very narrow linear-lanceolate, or almost acerose, narrowed at both ends, almost pungent, margins revolute, above deep green and glabrous or rather rough, silky and white beneath; petiole very short. *Racemes* short, terminal, and on very short lateral shoots, subglobose, dense-flowered, about one and a half inches long; rachis glabrous. *Flowers* deep blood-red, with green tips, in pairs from a subulate bract, pedicels very short. *Perianth* a quarter of an inch long, turgid and gibbous at the base, suddenly contracted into the revolute green limb. *Torus* nearly straight; gland semicircular, broad, thick. *Ovary* sessile, glabrous. *Style* twice as long as the perianth, red-purple, with a tuft of hairs at the base; stigma oblique, discoid.—*J. D. H.*

Fig. 1, Leaf; 2, a pair of flowers and bracts; 3, stigma :—*all magnified.*

W. Fitch del. et lith.

Vincent Brooks Day & Son. Imp.

Tab. 5972.

ASTEROSTIGMA Luschnathianum.

Native of Rio de Janeiro.

Nat. Ord. Aroideæ.—Tribe, Asterostigmeæ.

Genus Asterostigma, *Schott. Prodr. Syst. Aroid.*, p. 337.

Asterostigma *Luschnathianum ;* scapo petioloque teretibus albis maculis verticalibus nigro-brumeis pulcherrime irroratis, folio pinnatisecto late triangulari-ovato, segmentis 2 infimis deflexis pinnatilobatis, ceteris e basi lata decurrente lanceolatis obtuse acuminatis irregulariter sinuato-lobatis, spatha 2-4-pollicari cylindrica apiculata viridi purpureo-punctata spadicem vix superante intus reticulata, spadicis parte feminea ad medium dorso spathæ adnata cum mascula continua, staminibus corallinis truncatis 3-12-poris, ovariis 3-5-locularibus, stigmatis lobis cuneatis emarginatis.

Asterostigma Luschnathianum, *Schott Synops. Aroid.*, vol. i. p. 126; *Prodr. Syst. Aroid.*, p. 340.

Arum Dracontium, *Vellozo Flor. Flum.*, vol. ix. t. 103.

A very singular Aroid, belonging to a small Brazilian genus never previously introduced into Europe, for tubers of which the Royal Gardens are indebted to D. Hanbury, F.H.S., who, received them from Senor Correa de Melho, an indefatigable naturalist of Rio de Janeiro. Two specimens flowered simultaneously in the propagating pit at Kew, in February of the present year, of which one bore a flowering spike alone, the other both a flower and a leaf. Neither was so large as the specimen represented in the "Flora Fluminensis," which has, moreover, a more acute spathe produced further beyond the spadix. These two specimens further differed, in that one (bearing the name of var. *porphyrosticta*) had more purple in the spots of the petiole and scape; the other (var. *chlorostica*) had greener spots. These differences disappeared with age. The leaf of the latter was of a paler green, with broader closer-set segments. The colour of the petiole, scape, spathe, and male portion of the spadix are very curious and striking.

June 1st, 1872.

Descr. *Tuber* the size of a tolerable potato, oblate, smooth, brown, with many stout branching rootlets from the crown. *Leaf* one to two feet long, deep green, broadly ovate in outline, pinnatifid; two lower segments deflexed, deeply cut into three to five lanceolate acuminate lobes; remaining segments four to six pairs, sessile, remote (contiguous in Vellozo's figure), lanceolate, acuminate, irregularly sinuate-lobed or quite entire, broadly decurrent; petiole six to twelve inches long, cylindric, whitish, closely striate or irrorate, with short vertical black-purple streaks, that are obliquely confluent above. *Scape* similar to the petiole. *Spathe* two to four inches long, erect, cylindric, acute, with a narrow opening above and recurved edges, deep green externally and speckled with brown, reticulate internally. *Spadix* cylindric, upper half male, lower or female half very obliquely adnate for half its length to the back of the spathe. *Anthers* scarlet, truncate, with a circle of three to twelve pores. *Ovaries* white with green stigmas, seated on a cushion consisting of imperfect anthers, 3–5-celled; stigmatic rays three to five, cuneate, notched.—*J. D. H.*

Fig. 1, Spadix:—*of the natural size*; 2, anther; 3 and 4, transverse sections of ditto:—*all magnified.*

W. Fitch. del et lith

Vincent Brooks, Day & Son, Imp

Tab. 5973.

OLEARIA DENTATA.

Native of New South Wales.

Nat. Ord. Compositæ.—Tribe, Asteroideæ.

Genus, Olearia, *Mœnch.*; (*Benth. Fl. Austral.*, vol. iii. p. 463).

Olearia (Dicerotriche) *dentata*; frutex robustus, ramulis foliisque subtus dense fulvo-tomentosis, pilis stipitatis furcatis, foliis alternis petiolatis crassiusculis ovatis ellipticis orbiculatisve obtusis sinuato-crenatis supra scaberulis, capitulis majusculis in corymbos irregulares terminales dense fulvo-tomentosos dispositis, pedunculis bracteatis, bracteis parvis oblongis, involucri hemispherici squamis multiseriatis extimis brevibus suberectis, ligulis numerosis $\frac{1}{2}$-pollicaribus apicem versus roseis, disci corollis involucrum vix superantibus, antheris ecaudatis, styli ramis brevibus obtusis, pappi setis 2-seriatis exterioribus brevioribus, acheniis pilosis.

Olearia dentata, *Mœnch. Suppl.*, p. 254; *Nees Aster.*, p. 184; *DC. Prodr.* vol. v. p. 271; *Benth. Fl. Austral.*, vol. iii. p. 472.

Olearia rotundifolia, *DC. Prodr.*, vol. v. p. 271.

Aster dentatus, *Andr. Bot. Rep.*, t. 61.

Aster tomentosus, *Schrad. in Wendl. Sert. Han.*, vol. viii. p. 24.

Aster ferrugineus, *Wendland in Flora* 1819, p. 676.

Diplopappus rotundifolius, *Lessing in Linnea*, vol. vi. p. 116.

This is one of the beautiful Daisy-trees of the Australian colonies, a genus of plants many of which would thrive well and form great ornaments in the gardens of the mild part of Western England, and some of which stood for several winters in sheltered water at Kew, but were killed during recent cold winters.

The present species forms a fine bush in the Scilly Isles, where it was introduced by Augustus Smith, Esq., into his garden at Tresco Abbey, St. Mary's, it is believed from Kew, a good many years ago. I had the pleasure of visiting these gardens about fifteen years ago, with my late friends Prof. Harvey, of Dublin, and Veitch (the grandfather and founder of the firm), when we were all astonished and delighted with the luxuriance and variety, especially of the Cape and Australian

vegetation they displayed. Since that period, Mr. Smith has added many hundred species to his collection, and I have the pleasure of receiving every early spring a hamper of cut flowers of rare (with us) greenhouse plants cultivated in the open air, when the snowdrop and the winter-aconite are the only plants to be seen flowering in our open borders.

Olearia dentata is a native of various localities in the East coast of Australia, from Port Jackson, the Blue Mountains, and Illawarra, southward to Twofold Bay.

Descr. A stout *shrub*; branches, leaves beneath, and inflorescence clothed with a dense rusty-brown tomentum of rigid forked hairs. *Leaves* petioled, very variable, one and a half to two and a half inches long, elliptic ovate or cordate-ovate, obtuse, obtusely-sinuate crenate, scabrid above; petiole one-third to one-half inch long. *Heads* one to one and a quarter inches in diameter, in terminal erect or spreading corymbs; peduncles with oblong buff tomentose bracts. *Involucre* hemispheric; scales many, subacute. *Ligules* numerous, rosy, notched. *Anther-cell* without appendages. *Style-arms* short, obtuse. *Pappus-hairs* 2-seriate, outer much the shortest. *Achene* hairy.—*J. D. H.*

Fig. 1, Floret of ray; 2, style-arms; 3, floret of disk; 4, stamens; 5, style-arms of disk floret:—*all magnified.*

W Fitch, del. et lith.

Vincent Brooks, Day & Son, Imp

Tab. 5974.

CROTALARIA Heyneana.

Native of Malabar.

Nat. Ord. Leguminosæ.—Tribe, Genisteæ.

Genus Crotalaria, *Linn.*; (*Benth. and Hook. f. Gen. Pl.*, p. 479).

Crotalaria (simplicifolia) *Heyneana;* fruticulus erectus, subglober ramulis teretibus, foliis ellipticis v. elliptico-lanceolatis acuminatis breviter petiolatis subtus appresse pubescentibus, stipulis transverse lunatis recurvis, racemis terminalibus et axillaribus multifloris, bracteis minutis subulatis reflexis, pedicellis calyce appresse puberulo subæquilongis medio 2-bracteolatis, calycis brevis lobis 2 superioribus acutis, 3 inferioribus paulo longioribus subulato-ovatis, vexillo suborbiculato albo basi cæruleo-striato, alis obtusis dimidiatim cæruleis, carinæ petalis connatis, ovario villoso, legumine lineari-oblongo tumido pubescente.

Crotalaria Heyneana, *Graham in Wall. Cat.* n. 5414; *Wight Cat.* n. 701; *Wight and Arn. Prodr. Fl. Penins. Ind. Or.*, vol. i. p. 188; *Benth. in Hook. Lond. Journ. Bot.*, vol. ii. p. 560.

Of the great tropical genus *Crotalaria*, numbering some one hundred and twenty known species, very few are as yet in cultivation, though many are extremely handsome plants, easily grown, and possessing seeds which, like those of most Leguminosæ, retain their vitality for a long period. *C. Heyneana* is a native of the Western coast of the Indian Peninsula from Canara to Travancor, but is apparently rare. It was discovered in the early part of the century by the botanist and missionary, Heyne. The specimen here figured was raised from seed sent to the Royal Gardens in 1868 by our excellent correspondent, Major Beddome, F.L.S. of the Madras Forest Department: it flowered in the Palm House in March of the present year.

Descr. An undershrub, one to two feet high. *Stem* slender, sparingly branched; branches subcylindric, tips and young leaves pubescent. *Leaves* 1-foliolate, very shortly petioled, three to five inches long, membranous, elliptic-

lanceolate, acuminate, glabrous above, sparsely and minutely puberulous beneath, nerves slender. *Stipules* small, transversely lunate, recurved and half embracing the branch. *Racemes* axillary and terminal, many-flowered, suberect, about equalling the leaves, puberulous; bracts minute; pedicels slender, a quarter to one-third of an inch long, about equalling the calyx, 2-bracteolate at the middle, bracteoles minute. *Calyx* hemispheric, excrescent, 2-lipped; two upper lobes triangular, ovate, acute; three lower longer, more subulate. *Corolla* two-thirds of an inch in diameter; standard erect, shortly clawed, suborbicular, entire, base truncate, white with blue streaks at the very base; wings oblong, rather dilated at the rounded end, upper half pale blue, lower white; keel-petals connate for half their length, broadly ovate, and suddenly acuminate, base rounded, claw short. *Ovary* villous. *Pod* two inches long, linear-oblong, rather broader towards the acute end, tumid, hairy.—*J. D. H.*

Fig. 1, Flower with petals removed; 2, standard; 3, wing; 4, keel; 5, ovary:—*all magnified;* 6, pod:—*of the natural size.*

W. Fitch. del et lith.

Tab. 5975.

MUSA SANGUINEA.

Native of Assam.

Nat. Ord. Musaceæ.—Tribe, Museæ.

Genus Musa, *L.*; (*Endl. Gen. Pl.*, vol. i. p. 228).

Musa *sanguinea*; truncis 3–4 pedalibus confertis gracilibus coloratis 1 poll. diametro, foliis petiolatis lineari-oblongis acutis basi rotundatis v. cordatis subtus non glaucis, petiolo sub rufescente, scapo erecto breviter pedunculato, pedunculo rachique sanguineis, spica sub 6-pollicari erecto ovoideo, bracteis longitudine spicæ ovato-lanceolatis cymbiformibus subacutis sanguineis 3-floris demum revolutis caducis, ovariis sessilibus, perianthii aurantiaci ovario subæquilongi foliolo exteriore apice 5 lobo lobis orbiculatis exterioribus dorso sub apice corniculatis, foliolo interiore exteriore æquilongo apice truncato crenato, antheris subacutis, fructu oblongo turgido obtuse 3–4-angulato flavido rubro variegato, seminibus irregulariter cubicis tuberculatis.

This beautiful species so closely resembles the well-known *M. ornata*, Roxb., of Pegu (*M. rosacea*, Ker in Bot. Reg. t. 706, not Jacq.) in every particular of the floral organs, that I long hesitated before concluding that it was new; but besides the remarkable difference in the colour of the bracts, which in *M. ornata* are pale lilac, the stems of this are much more slender and redder, the leaves are subacute, and the fruit is turgid, with larger, more cubical seeds than those represented in Roxburgh's drawing.

Musa sanguinea flowered in the Palm House of Kew in January of the present year; it is a native of forests on the banks of the Booree Deling river in Upper Assam, where it was discovered, in 1869, by our valued correspondent, Mr. G. Mann, of the Forest Department of India, so well known for his West African discoveries. Three species of *Musæ* inhabit these forests, of which there is, besides that here figured, another at Kew, which has not yet flowered. My friend, the

Rev. Mr. Parish, informs me that a very similar species to *M. sanguinæ* inhabits the forests of Birma, and was cultivated by himself at Moulmein.

Descr. *Trunks*, several from the root, three to four feet high, erect; about as thick as a stout cane, reddish, leafy upwards. *Leaves* not collected in a terminal crown, petioled, blade two to two and a half feet long, linear-oblong or oblong-lanceolate, acute, rounded or cordate at the base, bright green above, not glaucous beneath; petiole of the upper one to two feet long, slender, reddish. *Scape* scarcely protruded beyond the leaf-sheath. *Spike* six inches long, erect, narrow ovoid before expansion, rachis stout, bright red. *Bracts* as long as the head, ovate-lanceolate, acute, boat-shaped, bright blood-red, striate, revolute, caducous, 3-flowered. *Lower flowers* all hermaphrodite, about two inches long. *Ovaries* about one-third shorter than the perianth, green, obtusely trigonous. *Perianth* orange-yellow, trigonous; outer segment with five small orbicular lobes, of which the outer are horned at the back below the tip; inner perianth-segment as long as the outer, membranous, truncate, obtusely toothed. *Stamens* as long as the perianth; anthers as long as the filaments, acute. *Style* stout; stigma capitate. *Fruit* two and a half inches long, pale yellow-green, variegated with red, smooth, turgid, obtusely 3–4-angled, many-seeded. *Seeds* irregularly cubical, tubercled, black.—*J. D. H.*

Fig. 1, *Reduced* figure of entire plant; 2, head of flowers *of the natural size*; 3, hermaphrodite flower; 4, perianth laid open; 5, tranverse section of ovary:—*all magnified.*

2

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W. Fitch, del. et lith.

Vincent Brooks Day & Son Imp.

Tab. 5976.

CALOCHORTUS ELEGANS.

Native of California.

Nat. Ord. Liliaceæ.—Tribe, Tulipeæ.

Genus Calochortus, *Pursh ;* (*Endl. Gen. Plant.*, vol. i. p. 140).

Calochortus *elegans ;* foliis gramineis 7–10 poll. longis ¼–½ poll. latis flores superantibus, floribus subumbellatis, scapis gracilibus flexuosis, spathis brevibus v. elongatis, pedicellis gracilibus, perianthii segmentis exterioribus elliptico-lanceolatis acuminatis viridibus, interioribus unguiculatis orbiculatis acutis dorso basin versus gibbo subacuto auctis, intus longe filamentoso-barbatis albis, macula basin orbiculata purpurea cum zona purpurea circumdata, antheris pallide cæruleis ovato-lanceolatis acutis, stigmatibus sessilibus brevibus recurvis.

Calochortus elegans, *Pursh*, *Fl. Bor. Am.*, vol. i. p. 240 ; *Hook. Fl. Bor. Am.*, vol. ii. p. 183.

Cyclobothria elegans, *Dougl. in Trans. Hort Soc.*, vol. vii. t. 9.

Discovered by Lewis, the early explorer of the Rocky Mountains, at the head waters of the Kooskoosky, a feeder of the Columbia River, early in the present century, and subsequently gathered by Douglas in 1826, in the recesses of the Rocky Mountains, near the regions of perpetual snow, in the same country, by whom it was introduced into England, and flowered in the Horticultural Society's Garden in about 1834. It has been also gathered in various localities considerably south and west of the above, but always on the western watershed of the Rocky Mountains, extending as far south as the Sacramento Mountains and the Sierra Nevada. Geyer, who also collected it, describes it as growing amongst grass, which it scarcely overtops with its solitary erect leaf. The inner perianth segments are of a woolly whiteness, but vary much in size, and in the colour and form of the purple lilac or blue markings towards their base.

For the re-introduction of this lovely plant we are indebted to Max Leichtlin, of Carlsruhe (who also introduced the *C.*

Leichtlinii, (Tab. nost. 5862), and who sent a coloured sketch of it for figuring in April of the present year; it arrived almost simultaneously with another specimen from Mr. William Saunders, who had received the bulbs from M. Leichtlin.

The position of *Calochortus* amongst *Liliaceæ* is hardly settled. Though placed by Endlicher in the tribe *Tulipeæ* of *Liliaceæ*, it differs most markedly from them in the sepaline outer perianth-segments, and three almost free stigmas, which resemble those of *Melanthaceæ*. The dehiscence of the anthers is, however, absolutely lateral.

Descr. *Tuber* ovoid, clothed with brown fibrous coats. *Scape* four to ten inches high, simple, slender, flexuous, leafy. *Leaves* grassy, seven to ten inches long by a quarter to half an inch broad, striated, bright green and shining above, glaucous beneath, much exceeding the inflorescence. *Flowers* corymbose, three to six or more, the peduncles arising from sheathing bracts that are short and cymbiform, or elongate and grassy; pedicels half to one and a half inches long. *Perianth* one to almost two inches in diameter; outer segments much the smallest, sepaloid, elliptic-ovate, acuminate, pale green, quite glabrous; inner shortly clawed, nearly orbicular, apiculate, concave towards the base, the concavity answering to a subacute dorsal gibbosity; whole inner surface clothed with a chalky-white filamentous beard; at their base is an orbicular blue lilac or purple spot, which is surrounded by a concentric band of the same colour. *Filaments* reddish; anthers acute, pale blue, with marginal dehiscence. *Ovary* nearly elliptic-oblong, longitudinally 3-lobed, the lobes acute at the back; stigmas three, short, recurved. *Capsule* two-thirds to one and a third of an inch long, membranous, shining, three-winged, wings or valves transversely striate.—*J. D. H.*

Fig. 1, Apex of pedicel, stamen and pistil; 2, inner perianth-segment:—*both magnified.*

W Fitch del et lith

Vincent Brooks Day & Son Imp.

Tab. 5977.

MILLA porrifolia.

Native of Chili.

Nat Ord. Liliaceæ.—Tribe, Agapanthieæ.

Genus Milla, *Cav.*; (*Baker in Journ. Linn. Soc.*, vol. xi. p. 378).

Milla (Hesperocordium) *porrifolia*; foliis scapum æquantibus v. superantibus anguste linearibus obtusiusculis supra concavis dorso convexis, spathis angustis membranaceis, pedicellos graciles subæquantibus, perianthio campanulato ex albo virescente ad medium 6-fido, lobis oblongis acutis lente recurvis costa gracili viridi.

Milla porrifolia, *Baker in Journ. Linn. Soc. Lond.*, vol. xi. p. 386.

Triteleia porrifolia, *Pœpp. Fragment.* p. 10; *Pœpp. and Endl. Nov. Gen. et Sp.*, vol. ii. p. 28, t. 139; *Gard. Chron.*, 1868, p. 990; *Kunth Enum. Plant.*, vol. iv. p. 468; *Gay Flor. Chili*, vol. vi. p. 118.

A native of grassy places in Chili, where it was discovered at Concan by Pœppig, the author of the species, and more recently collected by Philippi on the Cordillera of Santiago. It was first introduced into Europe by our indefatigable friend, Max Leichtlin, of Carlsruhe, who communicated bulbs to the Royal Botanic Gardens of Edinburgh; and I am indebted to Mr. McNab for the specimen here figured, which was accompanied by a description by Dr. Balfour and a sketch by Mr. Caird. The flowers are described as violet by Poppig, but there was scarce a trace of that colour in the cultivated specimen. *Milla porrifolia* is probably as hardy as *M.*(*Triteleia*) *uniflora*, and if it forms as handsome tufts and proves as amenable to both pot culture and the border as that plant, it will be an acquisition to the horticulturist. In one respect it possesses a great advantage over the *M. uniflora* in being inodorous when bruised, the alliaceous smell of the latter rendering it unfit for use as a cut-flower.

The genus *Triteleia*, together with *Hesperocordium*, has

been recently united with *Milla* by Mr. Baker, with much reason, and I have followed him in the nomenclature of this species.

Descr. *Bulb* ovoid, one inch long, clothed with broad brown membranous scales. *Sheaths* very membranous, white, fragile. *Leaves* five to seven inches long, narrow linear, one quarter to one-third inch broad, obtuse, bright green, concave in front, back convex, fleshy. *Scape* equalling the leaves or shorter than them, 4–8-flowered. *Spathes* two, lanceolate, membranous, equalling or shorter than the pedicels, white; pedicels very slender, half to one inch long, strict or curved. *Flowers* inclined or nodding, one inch long. *Perianth* campanulate, with six green slender keeled ribs, which terminate in the tips of the segments, white with faint violet streaks above, suffused with green below, divided to the middle; segments oblong, acute, slightly recurved. *Stamens* near the bottom of the tube; filaments flattened, subulate; anthers yellow. *Ovary* narrowly obovoid; style rather longer, stigmas three, short, recurved; ovules 2-seriate.—*J. D. H.*

Fig. 1, Perianth laid open; 2, pistil; 3, transverse section of the ovary: —*all magnified.*

Tab. 5978.

PITTOSPORUM crassifolium.

Native of New Zealand.

Nat. Ord. Pittosporeæ.

Genus Pittosporum, *Banks.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 131).

Pittosporum *crassifolium*; ramulis foliis subtus petiolis et inflorescentia tomento albo v. fulvo appresso dense obtectis, foliis alternis in petiolum angustatis obovatis lineari-obovatis oblongisve obtusis integerrimis crasse coriaceis marginibus recurvis, floribus umbellatis fasciculatis subsolitariisve terminalibus, bracteis ad basin pedunculi oblongis, sepalis lineari-oblongis tomentosis, petalis angustis purpureis, capsula nutante subglobosa 2–4 loba 2–4 valvi pubescente.

Pittosporum crassifolium, *Banks and Sol. ex A Cunn. in Ann. Nat. Hist.*, vol. iv. (1840) p. 106; *Putterl. Monog. Pittosp.* p. 12; *Hook. f. Fl. New Zeald.*, vol. i. p. 23; *Handbook of N. Zeald. Flora*, p. 20.

A not uncommon bush or small tree in the Northern Island of New Zealand, where it affects the immediate neighbourhood of the coast; but it does not cross Cook's Straits to the larger or Southern Island, a fact that is sufficiently curious, seeing that the climate of Scilly, from whence the specimens here figured were procured, is certainly more inclement than that of the New Zealand provinces of Canterbury and Nelson. It is one of the plants called "Karo" by the natives, a name apparently applied to several species of the genus, and is recommended for extensive planting in the Islands, on account of its hardihood and power of withstanding the sea winds. My friend, Mr. Augustus Smith, of Tresco Abbey, Scilly Islands, informs me that the plant which he received from Kew thrives in his garden, and that nothing can exceed the vigour and robustness of the flowering branches which he sent me last March. In Eastern England it requires the protection of a wall, and is not unfrequently cut off by frost.

Descr. A bush or small tree, four to ten feet high,

dense and ramous; branches erect; branchlets, petioles, leaves beneath, peduncles and sepals densely clothed with a white or buff appressed thick tomentum. *Leaves* one and a half to three inches long, narrow-obovate, oblong-obovate, or oblanceolate, always narrowed into the petiole, obtuse or subacute, coriaceous, convex and bright green above, margins recurved; petiole one-quarter to three-quarters inch long. *Flowers* variable in size and arrangement, terminal, sometimes solitary, but usually in nodding peduncled umbels, or becoming fascicled through the shortening of the peduncle, one-third to two-thirds inch long; peduncle and pedicels slender; bracts sheathing the base of the peduncle, oblong, obtuse, imbricate, caducous. *Sepals* elliptic, variable in breadth, white, about half the length of the petals. *Petals* narrow linear oblong, recurved beyond the middle, dark chocolate-purple, edges puberulous. Filaments glabrous; anthers linear. *Ovary* pubescent, obovoid, densely pubescent, usually 3-celled. *Capsule* very variable in size and thickness, one-third to two-thirds inch in diameter, 2–4-valved, tomentose; valves usually woody. *Seeds* numerous, black.—*J. D. H.*

Fig. 1, Petal; 2, stamen; 3, ovary; 4, transverse section of ditto:—*all magnified;* **5, fruit:**—*of the natural size.*

W. Fitch, del. et lith.

Vincent Brooks, Day & Son, Imp

Tab. 5979.

GREVILLEA PULCHELLA.

Native of South-Western Australia.

Nat. Ord. Proteaceæ.—Tribe, Grevilleæ.

Genus Grevillea, *R. Br.*; (*Benth. Fl. Austral.*, vol. v. p. 417).

Grevillea (Conogyne) *pulchella*; frutex ramulis foliisque glanduloso-pilosis, foliis lineari-oblongis pinnatifidis, segmentis 7–11 cuneatis 2–3-fidis, lobis triangularibus pungentibus, racemis terminalibus axillaribusve sessilibus v. breviter pedunculatis, rachi pubescente, bracteis parvis ovatis caducis, pedicellis brevibus, perianthii glabri stricti limbo ovoideo, toro recto eglanduloso, ovario stipitato glanduloso, stigmatis cono angusto basi dilatato.

Grevillea pulchella, *Meissn. in Plant. Preiss.*, vol. i. p. 553, *et in DC. Prodr.*, vol. xiv. p. 389; *Benth. Fl. Austral.*, vol. v. p. 484.

Anadenia pulchella, *R. Br. in Trans. Linn. Soc.*, vol. x. p. 167; *Prodr.* p. 374.

A native of Western Australia, near the Swan River, where it was discovered by Robert Brown, and has been collected by many succeeding investigators. It forms a very elegant evergreen bush, well suited for green-house culture, flowering in early spring and continuing in flower for several weeks. The specimen figured was raised from seed sent to Mr. Wilson Saunders from Australia, and flowered in the Temperate House of the Royal Gardens in April last.

Descr. A slender spreading shrub, two to three feet high, more or less sparsely hairy, the hairs often glandular. *Branches* very slender, zigzag, terete, leafy. *Leaves* two to three inches long, sessile, spreading, rigid, linear-oblong, pinnatifid or almost pinnate; pinnules seven to eleven pairs, cuneate or oblong quadrate, inserted by a broad decurrent base, 2–3-fid at the apex, lobes triangular, pungent, more or less hairy, rigid, margins recurved, dark green above, paler beneath, upper quite entire, lowest pair close to the

stem. *Racemes* terminal or subterminal, cylindric, obtuse, one and a half to two inches long, shortly peduncled; rachis hairy. *Flowers* one-third to half an inch long, crowded, white, shortly pedicelled, glabrous. *Perianth* slender; tip ovoid, subacute, terete. *Torus* naked, straight, without a gland. *Ovary* glandular-pubescent, subglobose, on a rather slender glandular stipes; style sigmoid, glandular, terminating in an oblong papillose head that suddenly dilates into a glandular stigma, furnished with a narrow central cone.—*J. D. H.*

Fig. 1, Pair of flowers on rachis; 2, top of pedicel, ovary and its stipes:—*both magnified.*

Vincent Brooks Day & Son, Imp

Tab. 5980.

ONCIDIUM SUPERBIENS.

Native of New Grenada.

Nat. Ord. Orchideæ.—Tribe, Vandeæ.

Genus Oncidium, *Swartz ;* (*Endl. Gen. Pl.*, vol. ii. p. 203).

Oncidium (Microchila) *superbiens ;* pseudobulbis elongato-ovatis compressis, foliis distichis elongatis lineari-oblongis acutis coriaceis carinatis, paniculâ maximâ effusâ, ramis flexuosis, bracteis cymbiformibus subacutis, sepalis trulliformibus unguiculatis undulatis obtusis, postico cordato apice reflexo lateralibus longius unguiculatis, petalis breviter late unguiculatis cordato-oblongis recurvis crispato-undulatis, labello parvo e basi breviter unguiculato ovato linguæformi revoluto undulato, callo in disco elevato tuberculato basi utrinque dente erecto instructo, columnæalis parvis falcatis.

Oncidium superbiens, *Reichb f. in Linnæa*, vol. xxii. p. 843; *Lindl. Fol. Orchid. Oncid.* p. 5.

A native of the forests of Venezuela and New Grenada, where it was discovered at about the same time by Fünck and Schlim, in 1847, near Pamplona, and by Purdie in the province of Ocana, at elevations of 8–9000 feet above the sea, flowering in January.

The specimen figured was communicated by Messrs. Veitch, in whose magnificent establishment it flowered in the spring of the present year; it is clearly allied to several other species of the same section and country, all of them remarkable for the smallness of the lip.

Descr. *Pseudobulbs* three to four inches long, elongate-ovate or ovate-lanceolate, much flattened. *Leaves* twelve to fourteen inches long, one and a quarter to one and a half inches broad, linear, acute, keeled, coriaceous, deep green above, pale beneath, sheathing portion two to four inches long, much flattened. *Panicle* two to three feet long, inclined, lax, flexuous, much branched, 20–30-flowered, bracts three-quarters of an inch long, boat-shaped, subacute, pale

green, coriaceous; pedicel and ovary one and a half inches long, the latter very slender, deeply grooved. *Flowers* two and a half inches in the longest diameter, which is the antero-posterior. *Sepals* clawed, the claw one-third the length of the blade, broad; upper trulliform with a cordate base and recurved tip, much crisped and waved; two lateral, more ovate, obtuse, less crisped, all chocolate brown, with yellow tips. *Petals* rather smaller than the sepals, with shorter, broader claws, and narrower, much recurved or revolute, and more wrinkled laminæ, bright yellow, with chocolate bars toward the base and claw. *Lip* not half the size of the petals, revolute, trulliform, auricled, shortly clawed, with a raised tubercled yellow fleshy crest towards the base, and a prominent acute tubercle on each auricle. *Column* with short rounded auricles on each side of the middle, and a small falcate obtuse ascending auricle on each side of the stigma.—*J. D. H.*

Fig. 1, Flower with the sepals and petals removed; 2, pollen:—*both magnified.*

Tab. 5981.

XIPHION TINGITANUM.

Native of Marocco.

Nat. Ord. Iridaceæ.—Tribe Irideæ.

Genus Xiphion, *Tournef.*; (*Baker in Seem. Journ. Bot.* 1871, p. 14.)

Xiphion *tingitanum* ; bulbo ovoideo membranaceo-tunicato, caule firmo 2–3-pedali flexuoso folioso 2–3-floro, foliis distichis $\frac{1}{2}$-$\frac{2}{3}$ poll. latis complicatis dorso acutis subfalcatis caulem longe superantibus, spathæ valvis lanceolatis basin limbi attingentibus, pedicello ovario subæquilongo, tubo perianthii ultra ovarium 1–$1\frac{1}{2}$ pollicari, limbo lætissime purpureo-violaceo, segmentis exterioribus 2–$3\frac{1}{2}$ pollicaribus, lamina late ovato-rotundata erosa apice 2-fida medio disco plaga aurea notata, ungue subpanduriformi lamina duplo longiore, interioribus spathulato-oblanceolatis erectis exterioribus paulo brevioribus, stigmatis crista profunde biloba segmentis interioribus æquilonga et lata.

Xiphion tingitanum, *Baker in Seem. Journ. Bot.* 1871, p. 13.

Iris tingitana, *Boiss. et Reut.-Pugill. Pl. Afr. Bor. et Hisp. Austr.* p. 113 (1852).

This magnificent Iris was discovered by Salzmann in meadows near Tangier, in 1825, and considered by him to be *Iris Xiphion*, L. (*Xiphion vulgare*, Miller), from which it differs signally in the tube of the perianth being produced above the ovary, and in the broad leaves and much larger flower. It approaches much closer the *X. filifolium* (Tab. nost. 5928), but that has also very narrow convolute leaves, a smaller paler flower with a deep azure border round the golden blotch of the outer segment. *Iris Fontanesii*, Godron, a native of Oran, in Western Algiers, is another ally of these; it is referred to *X. tingitanum* by Mr. Baker; it has flowers as large as *tingitanum*, and leaves intermediate in breadth between those of that plant and *X. filifolium*, thus combining these species to a considerable extent, and presenting, as far as we can judge without living specimens, no very decisive

distinctive characters. If to these facts be added that the much damper climate of Marocco would probably favour breadth of leaf, it would not be surprising that all three were proved to be referable to one species.

During my late visit to Marocco with Messrs. Ball and Maw, we first saw *Iris tingitana* on the dinner-table of His Excellency Sir J. Hay, at Tangier, where it was a most striking object. The specimens were from his garden, and we were informed that it was found wild not nearer than ten miles S.W. of Tangier, near Laraisch. Thither one of our party (Mr. Maw) made two excursions, the first one in vain, but the second with success. Specimens, both from this source and from Sir J. Hay's garden, were sent to Kew, which flowered in May of the present year. It is singular that Salzmann's locality of "meadows near Tangier" should never have been verified by subsequent collectors, nor be known to residents at Tangier, who were well acquainted with the plant.

Descr. *Bulb* ovoid, coated with brown membranous scales. *Stem* two to three feet high, stout, firm, flexuous, leafy. *Leaves* exceeding the stem, often three-quarters of an inch broad at the base, tapering thence to a fine point, distichous, complicate, keeled but hardly acute, smooth, bright green. *Spathes* lanceolate, bright green, not membranous, exceeding the perianth-tube. *Perianth* four to five inches across, of a brilliant violet-purple; *outer segment* with a subpanduriform claw, traversed dorsally by a stout green midrib; limb broadly ovate-orbicular, 2-toothed, serrate, disk with a raised oblong bright golden-yellow centre; *inner segment* oblanceolate-spathulate, erect, serrated, purple throughout. *Crest* of stigma 2-lobed, each lobe broadly semi-ovate, acuminate, serrate.—*J. D. H.*

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Tab. 5982.

MUNTINGIA Calabura.

Native of New Grenada.

Nat. Ord. Tiliaceæ.—Tribe Tilieæ.

Genus Muntingia, *Linn.*; (*Benth. and Hook. f. Gen. Pl.* vol. i. p. 236).

Muntingia *Calabura*; arbor parva, ramulis pedicellis foliisque subtus molliter velutino-tomentosis pilosisque, pilis interdum glandulosis, foliis oblongo-lanceolatis acuminatis dentatis basi oblique cordatis supra puberulis subtus canis, petiolo brevi, stipulis angustis, pedicellis 1–2-pollicaribus, sepalis lanceolatis apice filiformibus, petalis obovatis sepala excedentibus, toro piloso, bacca globosa.

Muntingia Calabura, *Linn. Sp. Pl.* n. 728. *Jacq. Amer. Pict.* t. 107. *Tuss. Fl. Antill.* p. 4, t. 21. *Decourlitz Fl. Med. Antill.* 5, t. 368. *Gært. Fruct.* 1, t. 59. *DC. Prodr.* vol. i. p. 514. *Griseb. Fl. Brit. W. Ind.* p. 98. *Karst. Fl. Columb.* vol. ii. p. 55, t. 128.

A very common American tree or bush from Mexico and Jamaica, and through many of the West Indian Islands, to Trinidad, Venezuela, and Peru, inhabiting both dry hills and river banks. An infusion of its leaves is used as tea in Caraccas. In Jamaica Purdie found the bark stripped off the trees in quantities, and used (as he was told) by the Negroes in cases of difficult parturition, under the name of "Guasem." Dr. M'Fadyen, however, in his excellent, though fragmentary Flora of Jamaica, makes no allusion to this or any other use of the plant; whence probably Purdie was in error, the bark being used, like that of many other *Tiliaceæ*, as cordage, as is the case in St. Domingo, where the wood also is used for staves.

Muntingia is a handsome stove plant, raised by I. Anderson Henry, Esq., from seeds sent by Dr. Jameson, of Quito, which flowered at Hay-lodge, Trinity, Edinburgh, in July, 1871. Karsten figures two supposed species of this genus, founded

on differences in their villosity and glandularness, and on the size and shape of the petals; all characters far too variable for specific purposes.

Descr. A small *tree* or *bush*, not exceeding thirty feet high, with spreading branches; branchlets, leaves beneath, petioles, and peduncles clothed with soft tomentum, and hairs which are often glandular. *Leaves* distichous, shortly petioled, oblong-lanceolate, acuminate, rather irregularly serrate-toothed, slightly pubescent above, white and densely velvety-tomentose beneath, triple-nerved at the very obliquely cordate base, of which the upper lobe is produced and rounded; petioles a quarter to half an inch long. *Stipules* very slender, as long as the petioles, caducous. *Flowers* fascicled in the axils of the leaves, three-quarters to one and a quarter inches in diameter, white with yellow anthers; peduncles much exceeding the petioles. *Sepals* ovate-lanceolate, green, pubescent, ending in a setaceous soft point. *Petals* five to seven, longer than the sepals, broadly obovate, variable in breadth and length. *Torus* hairy. *Stamens* erect, filaments slender; anthers small, yellow. *Ovary* shortly stipitate, elliptic, contracted into a very short, stout style, 3–6-celled; stigma shortly conical, lobed; ovules very minute, crowded upon pendulous placentas. *Berry* small, globose. *Seeds* minute, buried in pulp.—*J. D. H.*

Fig. 1, Torus and ovary; 2, vertical and 3, transverse section of ovary; 4, young fruit:—*all but fig.* 4 *magnified.*

J. Fitch del et lith

Vincent Brooks Day & Son

Tab. 5983.

LINARIA maroccana.

Native of Marocco.

Nat. Ord. Scrophularineæ.—Tribe Antirrhineæ.

Genus Linaria, *Linn.*; (*Benth. in DC. Prod.* vol. x. p. 265).

Linaria (Linariastrum) *maroccana*; annua, erecta, ramosa, superne viscoso-pubescens, foliis in surculis verticillatis, caulinis sparsis anguste linearibus lanceolatis linearibusve subacutis planis, racemis multifloris, pedicellis calycem superantibus, sepalis anguste linearibus obtusis, calcare elongato recto corollam læte purpuream pedicellumque longe superante, labio superiore erecto bipartito, lobis apice rotundatis, inferiore truncato 2-lobo lobis parvis rotundatis intermedio minore, palato prominente 2-lobo aureo intus villoso, seminibus subcylindraceis transverse rugosis.

The Spanish peninsula abounds in representatives of this elegant genus, many of which reappear on the plains and mountains of Marocco, whilst others are replaced by allied but very different species. This remark applies not only to the annual species like the present which chiefly affect the cultivated fields, but to the perennial, which affect, some the hedge-rows, others rocky river banks, and still others the lofty region of the great Atlas, which they ascend to 9000 and 10,000 feet of elevation. During my excursion to that country with Messrs. Maw and Ball, we collected no less than twenty species of this genus, amongst which the subject of the present plate was conspicuous in one district for its abundance and brilliant colour, adorning the cornfields in profusion in the province of Sectana, which skirts the greater Atlas in Lat. 31° N. *L. maroccana* belongs to a large section of the genus, and is closely allied to *L. reticulata*, Desf., of Portugal and N. Marocco. The seeds brought home germinated freely and flowered in the Royal Gardens in June of the present year.

August 1st, 1872.

Descr. An erect annual, branched from the base, ten to eighteen inches high, slender, glabrous below, viscid-pubescent above. *Leaves* on the short primary shoots whorled, elliptic-lanceolate, on the stems and branches one to one and a half inches long, narrowly linear, rather broader towards the middle, subacute, 1-nerved, pale green. *Racemes* very many-flowered, two to six inches long, much elongated in fruit; pedicels very slender, quarter to one inch long; bracts narrow linear. *Flower* with the spur one and a half inches long. *Sepals* green, narrow-linear, obtuse, glandular, recurved. *Corolla* bright violet-purple, with a small yellow patch which is not streaked with purple, on the centre of the palate; upper lip erect, 2-lobed to below the middle, lobes rounded at the top; lower lip very short, broad, truncate, 3-lobed, lobes rounded, the middle one rather the smallest; palate very prominent, 2-lobed, smooth, hairy within; spur often half as long again as the flower or pedicel, slender, gradually narrowed to a very fine point, purple. *Capsule* one-fifth inch long, turgid, as long as the appressed persistent sepals, glabrous, cells opening by two terminal pores, at length 5-valved. Seeds subcylindric, obtuse at both ends, transversely furrowed.—*J. D. H.*

Fig. 1, flower :—*magnified.*

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Tab. 5984.

GAULTHERIA FRAGRANTISSIMA.

Native of the Himalaya.

Nat. Ord. Ericeæ.—Tribe, Arbuteæ.

Genus Gaultheria, *Linn.*; (*DC. Prodr.*, vol. vii. p. 592).

Gaultheria *fragrantissima*; arbuscula, inflorescentia puberula ceterum glaberrima rarius foliis subtus sparse strigillosis, ramulis validis, foliis breviter petiolatis elliptico-ovatis oblongis lanceolatisve apice glanduloso-apiculatis acuminatisve crenato-serrulatis subtus punctatis crasse coriaceis, racemis axillaribus strictis multifloris, floribus bracteatis et 2-bracteolatis concavis acutis, sepalis ovatis acuminatis, corollæ globosæ ore parvo, lobis parvis fere orbiculatis erecto-patulis, capsula calyce accrescente cyaneo inclusa.

Gaultheria fragrantissima; *Wall. in Asiat. Researches*, vol. xiii. p. 207, t. 12; *Cat. n.* 765; *Wight Ic.* t. 1196; *DC. Prodr.* vol. vii. p. 593; *Thwaites Enum. Pl. Ceyl.* p. 170.

G. fragrans, *Don Prodr. Fl. Nep.* p. 151.

G. Leschenaultii, *DC. Prodr.* vol. vii. p. 593; *Wight Ic.* t. 1195; *Ill. t.* 141 *C.*

G. ovalifolia, *Wall. Cat. n.* 1523.

Andromeda flexuosa, *Moon Cat. Ceylon Pl.*

A. Katagherensis, *Hook. Ic. Pl.* t. 246.

Leucothoe? Katagherensis, *DC. Prodr.* vol. vii. p. 606.

A charming and very fragrant shrub or small tree, native of the mountains of India, from Nepal eastward to Bhotan in the Himalaya, between 5000 and 8000 feet; in the Khasia ranges at 5000 to 6000; in the Nilgherries, and on Adam's Peak in Ceylon ascending as high as 8000 feet. It is a bright evergreen, and is loaded in summer with white or rose-coloured blossoms, which are succeeded by beautiful blue-purple racemes of fruit.

G. fragrantissima is a greenhouse plant, and should prove a greater favourite than *Clethra arborea*, which it somewhat

resembles in general effect, from its profuse flowering. The specimen here figured flowered with I. A. Henry, Esq., in April, 1869, and was considerately communicated to us for figuring.

Descr. A large *bush* or small *tree*, everywhere glabrous except the pubescent racemes, or in some Ceylon states having the under surface of the leaves sparsely covered with short stiff appressed bristles, occupying the position of the small brown dots that occur on all the forms of the plant. *Branches* stout, obtusely angled, shining. *Leaves* two and a half to three and a half inches long, sometimes two and a half inches broad, very variable in shape, elliptic, ovate, obovate or lanceolate, acute or acuminate, tip apiculate and glandular, margin obtusely serrulate, very coriaceous and reticulate; nerves very obliquely arched; base acute, rounded or subcordate; petioles one-eighth to one-quarter inch long, stout. *Racemes* axillary, strict, erect or inclined, shorter than the leaves, many-flowered, pubescent. *Flowers* secund, drooping, shortly pedicelled; bracts and bracteoles concave, acute. *Calyx* 5-fid to the middle; lobes ovate, acuminate, green. *Corolla* globose, or broadly ovoid, one-third of an inch long, white or pale pink; mouth small; lobes rounded. *Filaments* dilated, puberulous; anther-cells with long forked recurved tips. *Ovary* 5-lobed, pubescent. *Fruit* a capsule, enclosed in the accrescent fleshy blue-purple calyx.—*J. D. H.*

Fig. 1, Flower, pedicel, and bracteoles; 2, stamens; 3, calyx and ovary: —*all magnified.*

W. Fitch del. et lith.

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Tab. 5985.

ZAMIOCULCAS Loddigesii.

Native of East Tropical Africa.

Nat. Ord. Aroideæ.—Tribe, Orontieæ.

Genus Zamioculcas, *Decne. in Bull. Soc. Bot. France*, vol. xvii. p. 321.

Zamioculcas *Loddigesii;* foliis imparipinnatis, foliolis 6–8-jugis alternis elliptico v. obovato-lanceolatis acutis brevissime petiolulatis v. sessilibus, nervis laxe reticulatis, petiolo tereti basi clavato infra foliola nodoso-incrassato, scapo perbrevi, spathæ tubo subgloboso lamina cymbiformi dorso infra apicem cornuta.

Zamioculcas Loddigesii, *Schott. Prodr. Syst. Aroid.* p. 214; *Decaisne in Bull. Soc. Bot. France*, vol. xvii. p. 322.

Caladium zamiæfolium, *Loddiges' Bot. Cabinet*, t. 1408.

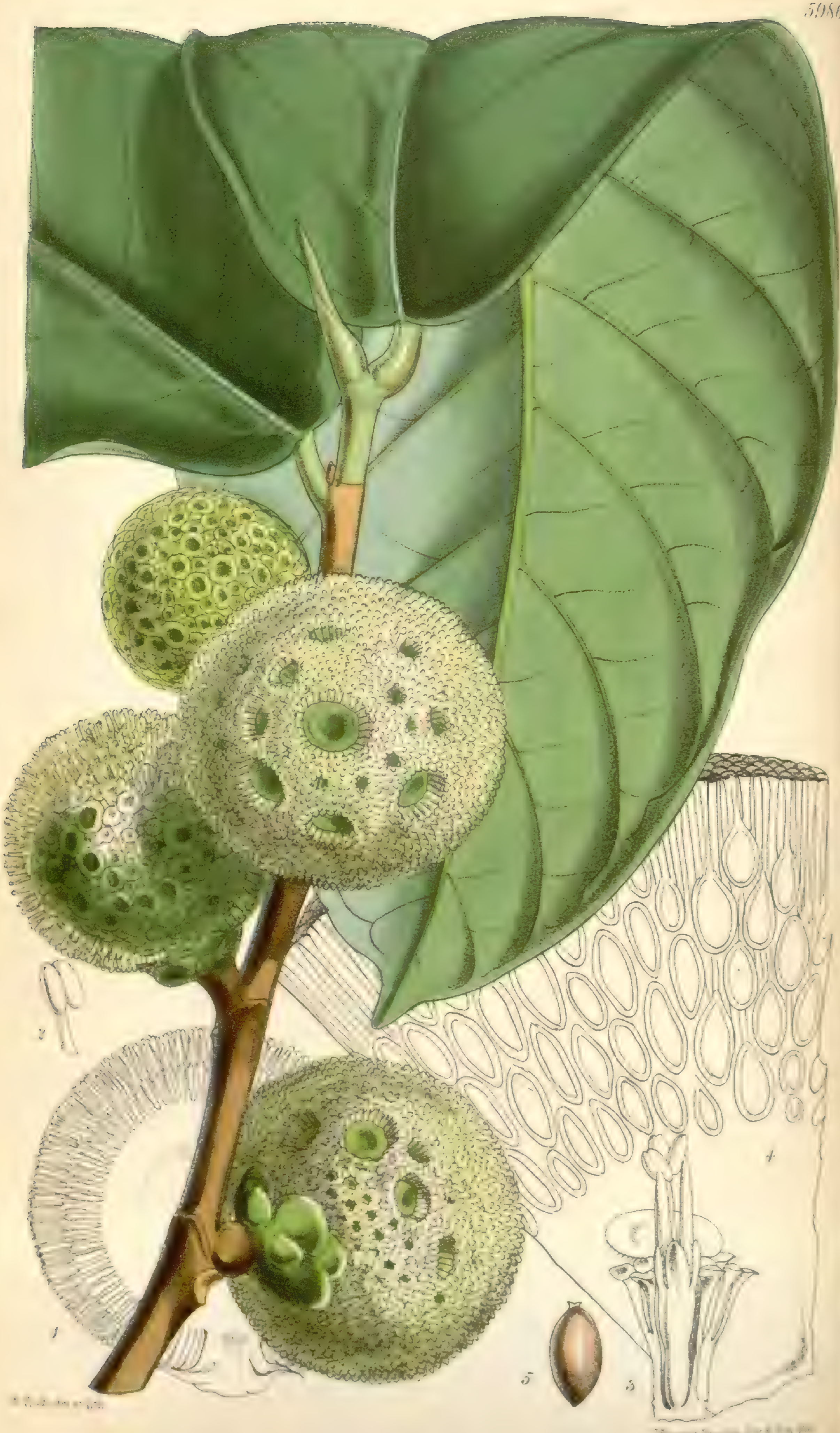
Decaisne has well remarked of this most curious genus, in a letter addressed to the President of the Botanical Society of France, that it is not only singular in the family of plants to which it belongs, but in the whole class of Monocotyledons, in having a genuine pinnated leaf, with articulated caducous leaflets, as in various Dicotyledons. To this peculiarity may be added the singular clavate form of the base of the petiole, and the thickened false articulation, like that of a *Marattia* frond, about halfway between the lowest pinnule and base of the petiole. M. Decaisne describes the flowers in the lower half of the spadix as female and of the upper as male; in the plant I find both stamens and pistils throughout the spadix, but the stamens appear perfect only on the lower half and the pistils on the upper; furthermore, whilst the pistils of the lower half are flaggon-shaped, with a short style, and a basal anatropous or campylotropous ovule in each cell, those in the upper half having oblong ovaries, with sessile stigmas, sunk below the tips of the perianth-segments (hence concealed), and

ovules adnate almost throughout their length to the septum.

The genus *Zamioculcas* is confined to eastern tropical Africa. *Z. Loddigesii* was introduced into the Horticultural Garden before 1828, probably by Forbes, and figured with a most imperfect description, by Loddiges, who supposed it to be a native of Brazil. Nothing more was known of it till it was introduced from Zanzibar into the Jardin des Plantes at Paris, where it flowered in 1869, and was subsequently described and published by M. Decaisne, together with another, also Zanzibar, species, *Z. Boivinii*, which exists in the Paris Herbarium and has bipinnate leaves. Our plants were received from that indefatigable naturalist Dr. Kirk, F.L.S., now H.B.M. V.-Consul at Zanzibar in 1870, and flowered in June, 1872.

Rhizome short; horizontal, giving off large white sessile tubers, the size of a potato, from the crown of which proceed very stout fleshy simple fibres. *Leaves* all radical, springing from the axil of an ovate-lanceolate brown membranous sheath that soon withers; petiole about two feet long, terete, clavate at the base, with a thickened false articulation some way below the leaflets, green, faintly marked with darker transverse bars; leaflets six to eight pairs, three to six inches long, alternate, deciduous, the uppermost sometimes appearing terminal, as if the leaf were imparipinnate, obovate- or elliptic-lanceolate, acute or acuminate, subsessile or shortly petioled, bright green and shining above, nerves laxly reticulated, pale beneath; midrib stout. *Scape* very short, stout. *Spathe* green, thick, lower part embracing the lower half of the spadix, blade about two inches long, boat shaped, with a dorsal horn below the apex. *Spadix* one and a half to two inches long, stout, cylindric, obtuse, constricted at the middle. *Flowers* most densely crowded. *Perianth-segments* cubical or cuneate, very thick, concave in front and closely embracing the pistil. *Stamens* with subclavate flattened filaments and minute anthers that burst by longitudinal slits.—*J. D. H.*

Fig. 1, Plant:—*reduced*; 2, portion of ditto:—*natural size*: 3, portion of petiole and leaflet; 4, spadix; 5, flower from lower part of the spadix; 6, vertical section of young ditto; 7, perianth, leaflet, and ovary of ditto; 8, vertical section of female flower and perianth:—*all magnified*.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Tab. 5986.

TRECULIA africana.

The "Okwa tree" of West Tropical Africa.

Nat. Ord. Artocarpeæ.—Tribe, Moreæ.

Genus, Treculia, *Decne.*; (*Trecul in Ann. Sc. Nat.* sér. 3, vol. viii. p. 108).

Treculia *africana*; glaberrima, ramulis validis, foliis breviter et crasse petiolatis oblongo-ovatis v. lanceolatis obtuse acuminatis integerrimis crasse coriaceis supra nitidis basi acutis v. suboblique cordatis, nervis validis, amento florifero globoso, bracteis orbiculatis crasse coriaceis suffulto breviter et crasse pedunculato.

Treculia africana, *Decaisne in Trecul Monog. sur les Artocarpées in Ann. Sc. Nat.* sér. 3, vol. viii. p. 109, t. 3, f. 86–90; *Walp. Ann.* vol. i. p. 658.

Myriopeltis edulis, *Welwitsch Mss.*

Amendoas de Disanha, *Welwitsch, Synopse Explicativa*, p. 54 (No. 142).

A very singular West African tree, closely allied to *Artocarpus* (which includes the bread-fruit and jack-fruit of tropical Asia), but differing in having three stamens instead of one, in the form of the perianth, in the embryo, and according to Trecul in the male and female flowers being mixed in the same head, which, however, is not the case in our specimen in which the heads are all male.*

Treculia appears to inhabit the whole western coast of tropical Africa, from Senegambia, where it was discovered by Heudelot, to Angola, whence it was brought by Dr. Welwitsch, who states in his Synopse Explicativa that the fruit is called "Amendoas de Disanha" by the Portuguese, and "Isa" in the Island of St. Thomas. Specimens have also been sent by Dr. Kirk from the west shore of Lake Nyassa, gathered during

* Trecul describes the genus as diœcious, no doubt a lapsus for monœcious, as he proceeds to say that the male and female flowers are mixed in the same head.

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Livingstone's expedition in 1861. The fruit is a foot or more in diameter, globose, and full of small elliptical nuts, with an eatable embryo, which are collected by the Negroes and ground into meal. Barter who also collected it during Baikie's Niger Expedition, describes it as a tree eighty feet high, ranging for thirty miles up the Niger river from its mouth, with fruits weighing eighteen to thirty pounds, full of seeds the size of a haricot bean. Dr. Welwitsch presented this interesting plant to Kew, in 1864, where it flowered for the first time in September of last year, and where it has borne the Mss. name of *Ficus Welwitschii*, Miquel.

Descr. A *tree* sixty to eighty feet high, everywhere glabrous. *Branches* very stout; bark brown. *Leaves* alternate, very shortly petioled, thickly coriaceous, six to fourteen inches long, sometimes seven to eight inches broad, oblong-ovate or lanceolate, rather abruptly obtusely acuminate, base acute or more often cordate, sometimes obliquely, shining and polished above, opaque beneath; nerves and costa very stout; nervules strongly reticulate; stipules one inch long, caducous. *Flower-heads* globose, shortly peduncled, two inches in diameter, all male in our plant, subtended by six to eight closely imbricating coriaceous orbicular green bracts; composed of a mass of male flowers and stipitate bracteoles with broad peltate green discoid tips, all crowded in two or three series on a globose fleshy receptacle. *Male perianth* tubular, three- to four-cleft, lobes obtuse ciliated. *Stamens* three, exserted, filaments stout erect; anthers shortly oblong. *Female flowers* not seen (perianth 3-leaved or 0, leaflets elongate, ciliate; ovary lenticular, style slender, stigmas two, subulate, horizontally spreading, papillose all over. *Trecul*). *Fruiting-head* one foot and more in diameter, with three to five irregular series of achenes buried in the circumference, each three quarters of an inch long, concealed amongst the remains of the perianth and bracteoles. *Achenes* crustaceous, smooth. *Seed* pendulous, exalbuminous. *Cotyledons* unequal, the larger recurved embracing the smaller; radicle superior.—*J. D. H.*

Fig. 1, Flowering head; 2, flower and peltate bracteoles; 3, top of stamen; 4, section of fruiting head; 5, achenes:—*all but* 1 *and* 4 *magnified.*

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Tab. 5987.

AMOMUM melegueta, var. minor.

Native of Western Tropical Africa.

Nat. Ord. Zinziberaceæ.—Tribe, Amoma.

Genus, Amomum, *Linn.*; (*Endl. Gen. Pl.* p. 223).

Amomum *melegueta*; caulibus gracilibus, foliis 4–6 pollicaribus anguste lineari-ellipticis longe attenuato-acuminatis glaberrimis, ligula brevi, vagina gracili, scapo 1-floro, bracteis 6–10 sub-appressis oblongis cuspidatis, perianthio exteriore spathaceo acuminato, interioris foliolo dorsali oblongo concavo obtuso, lateralibus e basi lanceolata angustis sensim acuminatis recurvis, labelli limbo amplo orbiculato margine eroso, filamenti processubus lateralibus subulatis, antheræ connectivo apice late subtriangulari integro dentato v. 2-fido, angulis lateralibus subulatis, ovario glabro, staminodiis liberis elongatis angustis.

Amomum melegueta, *Roscoe Monand. Plants*, t. 98; *Pereira in Pharm. Journ.* vol. vi. p. 412; *Mat. Med.* vol. ii. p. 1131, f. 235-241; *Guibourt Hist. Nat. des drogues simples*, vol. ii. p. 222; *Hook. f. in Kew Journ. Bot.* vol. vi. p. 293.

Var. minor, omnibus partibus minor, bracteis appresse convolutis, labello orbiculato. **Tab. nost. 5987. (an species diversa?)**

Apparently a small form of the plant which produces the famous Grains of Paradise of our shops, and perhaps the indigenous state of that plant, of which I have seen no other specimens identical with Roscoe's figure, but what were cultivated in French Guiana and Demerara, which differ from this in the larger size, longer leaves, more robust scape, larger looser bracts, larger flowers, and more obovate lip. The fruit, which I have received from Sierra Leone, but not with the plant here figured, is fleshy, very variable in form and size, half-clothed with the upper bracts, more or less ellipsoid or ovoid, glabrous, with fleshy pulp, and the seeds are one-sixth of an inch long, aromatic and pungent, with a shining rather rough testa, and usually a conical areole at the hilum.

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The only other single-flowered species of the genus is *A. arundinaceum*, Oliver and Hanbury (Journ. Linn. Soc. vol. viii. p. 109), which agrees with this in size and the orbicular lip, but has a more slender scape and a very different fruit and seed from *A. melegueta*.

The Grains of Paradise are imported from all parts of Western tropical Africa, from Sierra Leone to the Congo, but whether from wild or cultivated plants is not known. The specimen here figured was sent, in 1869, from Sierra Leone by M. Bockstadt, an excellent correspondent of the Royal Gardens, and flowered in May of the present year.

Descr. *Root-stocks* creeping. *Leafy stems* one to two feet high, slender. *Leaves* four to six inches long, spreading, distichous, narrowly elliptic-lanceolate, one inch broad, rounded or subacute at the sessile base; ligule very short, obtuse; sheath slender. *Scape* radical, two to three inches long, curved, terete, densely clothed with imbricate appressed convolute oblong cuspidate bracts, which are coriaceous and dull green with red margins and tips. *Flower* solitary, two to three inches long, very pale pink suffused with yellow towards the centre. *Outer perianth* spathaceous, acuminate; inner with the dorsal segment boat-shaped, suberect, obtuse; lateral segments elongate-subulate from a lanceolate base, recurved; lip oblong with an orbicular erose horizontal blade two inches in diameter. *Filaments* with the lateral processes erect, subulate; anther with a triangular terminal lobe, entire erose or 2-fid at the tip, the lateral angles acute. *Staminodes* erect, free, linear, truncate. *Stigmatic lobes* small.—*J. D. H.*

Fig. 1, Base of perianth, anther, and style; 2, staminodes and base of style:—*both magnified.*

W Fitch del et lith

Vincent Brooks

Tab. 5988.

MONANTHES muralis.

Native of Marocco and the Canaries.

Nat. Ord. Crassulaceæ.

Genus, Monanthes, *Haw.* ; (*Benth. and Hook. f. Gen. Pl.* vol. i. p. 660).

Monanthes *muralis* ; humilis, perennis, fruticulosa, ramis confertis v. e collo diffusis, nudis apicibus adscendentibus dense foliosis succulentis, foliis $\frac{1}{6}$ poll. longis spathulato-obovoideis crasse carnosis subsessilibus glabris sordide viridibus inferioribus purpureo variegatis, pedunculis subterminalibus $\frac{1}{2}$-pollicaribus 3–6-floris glanduloso-pubescentibus, floribus 6-meris, pedicellis glandulosis, calycis tubo late hemispherico segmentis acutis, petalis ovato-acuminatis aureis dorso sub apice rubro-punctatis, filamentis calycem subæquantibus, antheris rubris, squamis recurvis lamina spathulata crassiuscula emarginata flavis, carpellis semi-ovoideis viridibus apicibus rubris in stylum brevem subulatum attenuatis.

Petrophyes muralis, *Webb. mss. Walp. Ann.* vol. vii. p. 931.

The genus *Monanthes* (or *Petrophyes* of Webb), consists of six species, all natives of the Canary Islands, and supposed to be confined to that singular group, till one of these, the present species, was discovered in the Greater Atlas by my fellow traveller, Mr. Ball, F.R.S., growing on moist rocks at 7000 to 8000 feet elevation on Mount Tezi, south-west of the city of Marocco. As far as I can discover, the Moroccan is identical with the Canarian form, though had I the latter alive to compare it with, differences would, no doubt, be observable; in the colour, and perhaps in the form of some of the organs.

Monanthes is perhaps, too, closely allied to *Sempervivum*, differing in the much more developed scales opposite the carpels, and in the somewhat peculiar habit. The figure is taken from Mount Atlas specimens, brought by myself in June, 1871, which flowered in the Royal Gardens

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in April of the present year. In the Canary Islands this species has been found in the Isles of Ferro and Teneriffe, usually on walls but sometimes on rocks.

Descr. A small tufted nearly glabrous shining succulent perennial. *Stems* branched from the base; branches prostrate, one to three inches long, cylindric, naked below, bearing a densely imbricate rosette of twenty to thirty leaves towards the apex. *Leaves* about one-sixth of an inch long, subsessile, spathulate, quite entire, obtuse or emarginate or retuse, succulent, dark green and shining. *Flowers* subsolitary and in short few-flowered subterminal peduncled glandular cymes, a quarter to one-third of an inch in diameter, shortly pedicelled. *Calyx-tube* broadly hemispherical; lobes six, triangular-ovate, acute. *Petals* six, elliptic-ovate, acuminate, golden yellow, speckled with red on the back beneath the tip, which is keeled, twice as long as the calyx, recurved. *Stamens* twelve, filaments dilated; anthers dark-red. *Scales* spathulate, fleshy, yellow, limb recurved, notched. *Carpels* semi-ovoid, turgid at the base, narrowed into short slender red erect styles. *Ovules* three to four in each carpel, ascending from the ventral suture near the base.—*J. D. H.*

Fig. 1, Portion of stem and leaf; 2, flower; 3, ditto open; 4, base of calyx, scales, and carpels; 5, petal; 6, stamen; 7, scale and transverse section of carpel; 8, vertical section of carpel:—*all magnified.*

Vincent Brooks Day & Son lith

Tab. 5989.

BRODIÆA MULTIFLORA.

Native of California.

Nat. Ord. Liliaceæ.—Tribe, Milleæ.

Genus, Brodiæa, *Smith*; (*Baker in Journ. Linn. Soc.* vol. xi. p. 375).

Brodiæa *multiflora*; bulbo fibroso-tunicato 1-poll. diametro, foliis scapum superantibus lineari-elongatis 1–2-pedalibus $\frac{1}{6}$-$\frac{1}{3}$ poll. latis carnosulis subacutis supra concavis subtus convexis, scapo gracili fragili, bracteis plurimis ovato-lanceolatis acuminatis, floribus subcapitatis sessilibus v. pedicellatis, perianthio $\frac{1}{2}$–$\frac{2}{3}$ poll. longo cæruleo, tubo ventricoso, lobis tubo subbrevioribus oblongis apice obtusis subincurvis, staminodiis brevibus latis obtusis, antheris sessilibus 2-cuspidatis, ovario sessili, seminibus loculis paucis oblongis.

Brodiæa multiflora, *Benth. Pl. Hartweg*, p. 339; *Baker in Journ. Linn. Soc.* vol. xi. p. 377.

B. parviflora, *Torr. and Gray, Bot. Pacif. Railw. Exped.* p. 125; *Wood in Proc. Acad. Philad.* 1867, p. 172.

A charming Californian bulb, discovered by Hartweg in 1848, and more recently gathered by Fremont, Bridges, Lobb, and various other collectors in the Sacramento valley, Utah, and elsewhere. It belongs to the section *Eubrodiæa* of the genus, as reformed by Baker, which genus now includes five species, all natives of America west of the Rocky Mountains. Of these *B. grandiflora* is figured in this work at Tab. 2877; and the beautiful *B. coccinea* at Tab. 5857. For the opportunity of figuring *B. multiflora* I am indebted to W. Wilson Saunders, Esq., F.R.S., who flowered it in May of the present year, from bulbs communicated by Max Leichtlin, of Carlsruhe.

Descr. *Bulb* one inch in diameter, depressed-globose, clothed with a finely reticulated coat. *Leaves* few, one to two feet long, one-sixth to one-third of an inch broad,

rather fleshy, bright green, acute, concave in front, convex at the back. *Scape* shorter than the leaves, slender, fistular, brittle, quite smooth. *Bracts* six or eight, shorter than the flowers, membranous, ovate-lanceolate, acuminate. *Flowers* in a subglobose head, crowded, subsessile or on pedicels one-sixth to half an inch long. *Perianth* bright blue; tube ventricose and obscurely lobed, half an inch long; lobes rather shorter than the tube, oblong, subacute, tips slightly incurved, spreading, nearly flat. *Staminodes* short, erect, broadly triangular-ovate, obtuse. *Anthers* sessile, oblong, 2-cuspidate. *Ovary* elliptic, sessile; style included, stigma 3-lobed; ovules numerous, 2-seriate in each cell. *Capsule* elliptic-oblong, enclosed in the membranous perianth-tube. *Seeds* few in each cell, linear-oblong.—*J. D. H.*

Fig. 1, Flower; 2, perianth laid open; 3, ovary; 4, transverse section of ditto:—*all magnified.*

Tab. 5990.

MASDEVALLIA Lindeni.

Native of Central America.

Nat. Ord. Orchideæ.—Tribe, Pleurothallideæ.

Genus, Masdevallia, *Ruiz and Pavon;* (*Lindl. Gen. and Sp. Orchid.* p. 192).

Masdevallia *Lindeni;* caulibus fasciculatis, foliis longe petiolatis crasse coriaceis anguste obovato-spathulatis enervibus retusis in petiolum antice profunde sulcatum longe attenuatis coriaceis, scapis gracilibus folio longioribus flexuosis, floribus decurvis, sepalis sanguineis inferne in tubum subcylindricum decurvum stramineum basi æquabile connatis, dorsale e basi triangulari elongato-subulato reflexo erecto lateralibus maximis semi-ovatis attenuato-acuminatis, petalis parvis lineari-oblongis emarginatis basi uno latere auriculatis, labello unguiculato linguæforme basi cordato integerrimo, columna exalata, androclinio integerrimo.

Masdevallia Lindeni, *André in Illust. Hortic.* vol. xvii. p. 226, *cum Ic.*

This is another of that remarkable group of *Masdevallias* which have attracted so much attention amongst botanists and horticulturists of late, from the singular form and colouring of their sepals, and of which *M. Veitchiana* Reichb. f. (Tab. nost. 5739) and *M. ignea* (Tab. nost. 5962) are examples. All these present a wonderful similarity in the form and structure of the petals, lip, and column, which are concealed in the tube of the perianth, and appear as if reduced in size and suppressed as to function in favour of the three outer sepals, which, by their gorgeous colouring, if not by their form also, no doubt attract insects to fecundate the species by cross fertilization. Of this type many more species have yet to be imported, especially from New Grenada. Altogether upwards of fifty species of this singular genus exist in our Herbaria at Kew, the genus extending from Cuba and Mexico to Rio de Janeiro.

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M. Lindeni was flowered at the Glasnevin Gardens by Dr. Moore, F.L.S., who obligingly transmitted it for figuring, in June of the present year. It was supposed to have been received by him amongst a batch of Central American Orchids, collected by Roezel; but André states that it was introduced by G. Wallis from New Grenada in 1869.

Descr. *Stems* tufted. *Leaves* six to ten inches long; petiole three to four inches long, stout, deeply grooved in front with a single long basal sheath; blade nerveless or obscurely nerved, narrow, obovate, retuse, narrowed and acutely channelled at the base, very dark green, thickly coriaceous, keeled at the back. *Scape* one foot long and upwards, flexuous, with three or four distant appressed sheaths an inch long, green variegated with dull red; upper sheath or bract distant from the flower. *Flower* three inches long. *Ovary* short, straight, deeply grooved. *Perianth* blood-red; sepals connate below into a decurved yellow tube, which is rounded and hardly gibbous at the base; dorsal sepal very long, almost filiform from a triangular base, recurved, suberect, flexuous; lateral sepals connate to below the middle, deflexed, semi-ovate, tapering to the acute approximate tips. *Petals* linear-oblong, retuse, auricled in front at the base. *Lip* linguiform, nearly as long as the column, base cordate. *Column* not winged, quite entire.—*J. D. H.*

Fig. 1, Flower with the sepals removed; 2, column and lip; 3, column; 4, lip:—*all magnified.*

W Fitch del et lith

Vincent Brooks Day & Son Imp

Tab. 5991.

SALVIA taraxacifolia.

Native of the Greater Atlas.

Nat. Ord. Labiatæ—Tribe, Monardeæ.

Genus, Salvia, *Linn.*; (*Benth. in DC. Prodr.* vol. xii. p. 262).

Salvia (Eusphace) *taraxacifolia;* caule e basi adscendente erecto inferne foliisque subtus albo-lanatis superne simplici acute 4-gono piloso, foliis pinnatifido-lobatis v. pinnatisectis lobis lateralibus parvis variis terminali magno ovato obtuso v. cuspidato sinuato-dentato, floralibus parvis sessilibus ovatis concavis, racemis simplicibus, verticillastris multifloris, floribus breviter pedicellatis v. subsessilibus, calycibus oblongis cylindraceo-campanulatis tomentosis et pilosis, dentibus triangulari ovatis longe rigide setaceo-acuminatis fere rectis, corolla calyce subduplo longiore, tubo inflato glabro, intus basi annulo piloso, labio superiore breviusculo compresso dorso villoso, labio inferiore trilobo, lobis brevibus lateralibus deflexis intermedio quadrato 2-lobo, connectivo arcuato antice porrecto apice anthera castrata aucto.

Salvia taraxacifolia; *Cosson mss.*

A native of the lower slopes of the Greater Atlas, where it was discovered by the botanical traveller M. Balansa during his adventurous journey from Mogador to Marocco in 1867,* and whose collections, now in the possession of M. Cosson, of Paris, have not yet been published. It was again collected by Messrs. Maw, Ball, and myself in 1871, growing on rocks and shingle in beds of rivers along the base of the Greater Atlas, at elevations of 2000 to 3000 feet, sometimes forming broad patches, and presenting a very beautiful appearance.

Salvia taraxacifolia belongs to the first section of the genus (*Eusphace*), to which the gigantic *S. interrupta* of Marocco also belongs, but it is not very closely allied to any of its con-

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* See "Bulletin de la Société de Geographie de Paris" (April, 1868).

geners. It is a very ornamental rock-work plant, but probably requires protection in the winter of this country. It was flowered from our specimens simultaneously (in July) by Mr. Maw at Brosely, Mr. Niven at the Hull Botanic Gardens, and in the Royal Gardens, Kew; Mr. Niven's being considerably the finest specimen.

Descr. *Root-stock* woody, branched, perennial. *Stems* numerous from the stock, ascending, then erect, six to eighteen inches high, robust, quite simple, 4-angled, clothed below with soft snowy cotton, above with lax soft spreading hairs. *Leaves* two to four inches long, pinnatisect, sessile or petioled; lower lobes few or many, broad or narrow, close-set or distant; terminal one to one and a half inches long, ovate, obtuse or cuspidate, irregularly sinuate-toothed; all clothed below with snow-white cottony tomentum, softly tomentose above; floral sessile, ovate, aristate, shorter than the flowers. *Whorls* (false) 6–10-flowered. *Flowers* very shortly pedicelled. *Calyx* half an inch long, tubular-campanulate, tube densely appressed tomentose and clothed with spreading hairs; lips nearly straight, upper 3- lower 2-lobed; lobes triangular-ovate, subulate-aristate, nearly straight, rigid, veined, upper slightly up-curved. *Corolla* nearly twice as long as the calyx; pale pink with a yellowish disk to the lower lip, and purple speckled prominent pilose palate; tube ventricose, villous near the faux and on the short galeate compressed upper lip; and with a ring of brown hairs near the base within; lower lip deflexed, 3-lobed; lateral lobes small, decurved; mid-lobe quadrate, 2-lobed. *Connective* arcuate, lower arm projecting, terminated by a deformed adnate empty anther-cell. *Style-arms* subulate.—*J. D. H.*

Fig. 1, flower; 2, calyx, style, and stigma; 3, top of filament and anther:—*all magnified.*

W Fitch. del et lith

Tab. 5992.

LACHENALIA TRICOLOR, VAR. AUREA.

Native of South Africa.

Nat. Ord. Liliaceæ.—Tribe, Hyacintheæ.

Genus, Lachenalia, *Jacq.*; (*Baker in Journ. Linn. Soc.* vol. xi. p. 401).

Lachenalia (Eulachenalia) *tricolor;* foliis binis 6–9 pollicaribus $\frac{1}{4}$-$\frac{1}{2}$ poll. latis lineari-oblongis loratisve subacutis herbaceis concoloribus v. maculatis, scapo foliis longiore, racemo stricto 6–18-floro, floribus laxis, bracteis parvis deltoideis, pedicellis inferioribus $\frac{1}{6}$-$\frac{1}{3}$ poll. longis, perianthio $\frac{3}{4}$-1 poll. longo æquali tubuloso basi gibbo, foliolis exterioribus in tubum connatis dorso infra apicem obtusum gibbis, interioribus exterioribus duplo longioribus e basi lineari-spathulatis staminibus inclusis.

Lachenalia tricolor, *Thunb. Flor. Cap. Prod.* p. 64; *Flor. Cap.* p. 327; *Bot. Mag.* t. 82; *Redouté Lil. t.* 2; *Kunth. Enum.* vol. iv. p. 290; *Baker in Journ. Linn. Soc.* vol. xi. p. 404.

L. quadricolor, *Jacq. Ic.* t. 396; *Andr. Bot. Rep.* t. 148; *Bot. Mag.* t. 1704.

L. luteola, *Jacq. Ic.* t. 395; *Redouté Lil.* t. 297.

Phormium aloides, *Linn. Suppl.* p. 205.

Var. *aurea;* foliis maculatis, scapo gracili rubro purpureo-variegato, floribus aureis cereaceis. L. aurea, *Lindl. in Gard. Chron.* 1856, p. 404. et 1872, p. 290, *Ic.* n. 109.

A singularly graceful and bright-coloured plant, well described in the *Florist and Pomologist*, whence an extract is given in the *Gardeners' Chronicle*, signalling Mr. Barron's success in cultivating this and other species of this lovely genus. *L. tricolor*, according to Mr. Baker's determination, is a very variable plant, and includes as forms *L. quadricolor*, *L. luteola*, Jacq., and *L. aurea*, Lindl., of which the last, that now figured, is by far the most elegant, and is further remarkable for its bright colour and the waxy texture of its flower. It flowered in the Royal Gardens in March of the present year from bulbs.

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Upwards of thirty species of *Lachenalia* are described in Mr. Baker's enumeration, of which fifteen have been introduced into European gardens.

Descr. *Bulb* spherical. *Leaves* twin at the base of the scape; sheath long or short; blade recurved, six to twelve inches long, one to two and a half inches broad, subacute, dark green, uniformly coloured, or speckled or spotted with darker spots. *Scape* six to ten inches high, reddish, variegated with darker red or purple. *Raceme* 10–18-flowered, slender, long, erect, bracts small, deltoid-subulate; pedicels one quarter to one-third inch long, slender. *Perianth* golden yellow, waxy, one inch long, tubular; base rounded, rather gibbous; outer segments connate to or below the middle, obtuse, with a gibbous dorsal boss below the tip; inner almost twice as long as the outer, pale yellow, spathulate, slightly spreading, tip rounded or obtuse. *Stamens* included, nearly as long as the outer perianth segments. *Ovary* oblong, 3–lobed, style very slender, stigma simple.—*J. D. H.*

Fig. 1, Pistil :—*magnified.*

W.Fitch.del et lith.

Vincent Brooks Day & Son Imp

Tab. 5993.

ODONTOGLOSSUM PARDINUM.

Native of Equador.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Odontoglossum, *H. B. & K.*; (*Lindl. Fol. Orchid. Odontoglossum*).

Odontoglossum (Isanthium) *pardinum;* pseudobulbis 2-3-pollicaribus ovatis compressis, foliis 6–8-pollicaribus anguste lineari-oblongis acutis, paniculæ ampla multiflora foliis longiore laxe ramosa, bracteis cucullatis acuminatis, floribus aureis maculis paucis aurantiacis ocellatis, sepalis lanceolatis acuminatis, petalis paulo latioribus ovato-lanceolatis acuminatis undulatis, labello breviter unguiculato subpanduriformi acuto, cristæ lamellis lateralibus argute dentatis spina erecta anteposita, intermedia tumida, columna aptera.

Odontoglossum pardinum, *Lindl. in Sert. Orchid. Sub.* t. 25; *Fol. Orchid.* No. 49. *Walp. Rep.*, vol. vi. p. 841.

An inhabitant of the Andes of Equador, where it was discovered by the veteran botanical explorer of that region, Dr. Jameson, late Professor of Botany and Chemistry in the University of Quito, who, after a residence of nearly fifty years at an elevation of 10,000 feet above the level of the sea, is now returned upon a brief visit to his native country. Dr. Jameson having finally left Quito, took sea to Valparaiso and thence crossed the Andes to the Argentine Republic, where he was attached to the University of San Juan for a short period, and collected many of the curious plants of that dry region, of which very little is known botanically since Gillies collected there half a century ago. From thence Dr. Jameson crossed the plains of La Plata to Monte Video, whence he sailed for England, which he will shortly leave to return to Valparaiso.

Odontoglossum pardinum belongs to a section that contains many very closely allied species, and which abounds in New

Granada, Peru, and Equador. The fine specimen here figured flowered in the nurseries of Messrs. Backhouse of York, in December, 1867.

Descr. *Pseudobulbs* two to three inches long, ovate, compressed, green, smooth. *Leaves* six to eight inches long by one to one and a quarter broad, narrow elliptic-oblong, acute, keeled, narrowed at the base, bright green. *Panicle* two to three feet long, broad, branched, spreading largely, many-flowered. *Bracts* half an inch long, boat-shaped, acuminate, membranous. *Flowers* two inches in diameter, pale golden yellow, with a few orange-red ocellated spots on the petals and lip. *Sepals* spreading, lanceolate, acuminate, slightly undulated. *Petals* rather shorter and broader, incurved, ovate at the base, much undulated. *Lip* shortly clawed, oblong panduriform, acute, sides entire. *Crest* of two lateral wings, with an erect spine in point of the distal end of each; intermediate ridges tumid, smooth. *Column* not winged, rather short, smooth.—*J. D. H.*

Fig. 1, Front view of lip and column; 2, side view of d˙tto:—*magnified.*

W. Fitch, del. et lith.

Vincent Brooks Day & Son Limp

Tab. 5994.

CIENKOWSKIA Kirkii.

Native of Eastern Tropical Africa.

Nat. Ord. Scitamineæ.—Tribe Zinziberæ.

Genus Cienkowskia, *Solms Laubach*; (*Schweinfurth Beitrag Flor. Æthiop.*, p. 197, t. 1).

Cienkowskia *Kirkii*; foliis 3-5 distichis elliptico-ovatis acuminatis suberectis floribus coetaneis, scapo gracili adscendente vaginato multifloro, spathis $\frac{1}{2}$-pollicaribus cymbiformibus subacutis, ovario glabro, perianthio externo brevi ovario subæquilongo infundibulari-campanulato truncato margine eroso 3-corniculato, petalis 3 exterioribus oblongo-lanceolatis acutis concavis antheram vix superantibus, interioribus in labellum amplum 3-lobum connatis, lobo intermedio latiore emarginato, connectivo in laminam late oblongam apice obtusam recurvam producto, staminodiis parvis conicis obtusis.

The genus *Cienkowskia* was established by Solmes Laubach (Sitzungsbericht der Ges. naturf. Freunde, July, 1863) on a Zinziberaceous plant of Abyssinia, which differs from *Kæmpferia* in the inner perianth lobes being united so as to form one 3-lobed lip, split to the base posteriorly. This character appears to be overlooked in Solmes Laubach's description of the genus quoted above (in Schweinfurth's Beitrag), which disagrees in no respect from the character of *Kæmpferia*; it is however accurately pourtrayed in the figure of the original species, *C. Æthiopica*, given in the same work. A third staminode is, according to this figure, embedded in the summit of the ovary, half way between the top of the cells and insertion of the outer perianth; this I regret to say was not searched for in the plant here figured; but I find it in a careful drawing of another species, made during Livingstone's second expedition by Dr. Kirk.

The genus *Cienkowskia* extends from Natal to Abyssinia and Nubia, and across the continent to the Niger river and

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Senegambia, and there appear to be several species, some of which flower with the leaves, others not. M. Gerard, the discoverer of the Natal species, describes the flowers as unisexual. Our drawing was taken from living plants sent by Dr. Kirk from the coast opposite Zanzibar, in 1871, and which flowered in the Royal Gardens in May of this year.

Descr. *Roots* of tuberous fibres emitted from a fleshy stock. *Stem* short, three to four inches high, formed of the sheathing petioles of the leaves, surrounded by a few erect green acute sheaths. *Leaves* distichous, six to eight inches long by three to three and a half broad, elliptic or ovate-lanceolate, acuminate, with eight to ten oblique nerves, and narrow translucent margins, deep green above, paler beneath. *Scape* three to four inches long, appearing with the leaves, slender, erect, with two to three long subacute tubular green sheaths, and a many-flowered conical inflorescence of boat-shaped green bracts half an inch long. *Flowers* two to two and a half inches across the lip. *Outer perianth* tubular-campanulate, truncate, with three remote teeth. *Inner perianth* 2-seriate, three outer petals oblong-lanceolate, acute, subequal, connate into a short tube at the base, white; three inner connate into a broad rounded expanded 3-lobed lip, split to the base next the axis, connate below to the filament, pale rose-purple, with a bifid golden spot opposite the anther, mid-lobe notched. *Filament* short, broad; connective expanded and tumid, very much broader than the anther-cells, and produced above into an oblong recurved membrane, rounded at the tip. *Ovary* glabrous, crowned by two small conical obtuse staminodes. *Style* very slender, stigma flabellate.—*J. D. H.*

Fig. 1, Flower with lip removed; 2, ovary, staminodes, and base of style:—*both magnified.*

Tab. 5995.

LITANTHUS pusillus.

Native of South Africa.

Nat. Ord. Liliaceæ.—Tribe Allieæ.

Genus Litanthus, *Harv.*; (*Harv. Gen. S. Afric. Plants*, ed. 2, p. 399).

Litanthus *pusillus*; perpusillus, bulbo spherico albo, foliis 2-nis 2–4-polli-caribus filiformibus obtusis superne concavis dorso convexis, basi vagi-natis, vaginis membranaceis, scapis a bulbis aphyllis egredientibus foliis brevioribus capillaceis 1–2-floris, bracteis 2-nis minutis oblongis pel-tatis membranaceo-marginatis, floribus nutantibus albidis, pedicello curvo, perianthio cylindraceo-campanulato breviter 6-lobo deciduo lobis rotundatis, antheris inclusis connectivo apice producto 2-dentato, ovario sessili, stylo simplici, stigmate truncato, capsula subglobosa.

Litanthus pusillus, *Harv. in Hook. Lond. Journ. Bot.* (1844) vol. iii. p. 314, t. 9. *Gen. S. Afric. Plants*, ed. 2, p. 399.

Perhaps the smallest known Liliaceous plant, with leaves like green threads and pearly-white nodding flowers, always arising from leafless bulbs, whence probably the bulbs bear leaves and flowers in alternate years. It was discovered in 1843, by Zeyher, amongst rushes in thickets, near the Zwartkops river, Uitenhage; and later in Caffraria by H. Bowker and Mrs. Barber. Our specimens were received, in 1870, from Mr. Harry Bolus, an excellent South African botanist; they were planted in light soil and placed in a warm house, where they flowered freely in August of the present year.

Descr. *Bulb* the size of a hazel-nut, white, coats very fleshy, with a few slender fibres at the very base, and at the top either a pair of leaves or a solitary scape, in either case sheathed at the base with a few appressed convolute tubular membranous brown scales, those of the scape very short, of the leaves longer. *Leaves* two to four inches long, in pairs, erect, fili-

form, deep green, obtuse, concave in front, convex on the back. *Scape* solitary, always from a leafless bulb, capillary, about half the length of the leaves, erect, rather rigid. *Flowers* one or two, one-sixth to a quarter of an inch long, solitary or twin, nodding or drooping; bracts two, very minute, elliptic, peltate, green with broad white membranous margins. *Perianth* cylindric, campanulate, white with a green streak down the back of each lobe; lobes six, almost orbicular. *Stamens* inserted on the throat of the corolla; filaments very short, dorsifixed; anthers erect, linear-oblong; cells parallel, introrse, bright yellow; connective produced, 2-toothed at the apex. *Ovary* sessile, 3-lobed; style short, straight, broader upwards, included, stigma truncate; ovules several, 2-seriate in each cell. *Capsule* suberect, subglobose, loculicidally 3-valved, several-seeded.—*J. D. H.*

Fig. 1, Apex of leaf; 2, top of scape, bracts and flowers; 3, perianth cut open; 4 and 5, back and front view of stamens; 6, transverse section of ovary; 7, capsule:—*all magnified.*

Tab. 5996.

PELARGONIUM OBLONGATUM.

Native of South Africa.

Nat. Ord. Geraniaceæ.—Tribe Pelargonieæ.

Genus Pelargonium, *L'her.*; (*Benth. and Hook. f. Gen. Pl.* vol. i. p. 273).

Pelargonium (Hoarea) *oblongatum;* caudice erecto tuberoso fusiformi brunneo, apice stipulis lanceolato-subulatis stellatim patentibus coronato, foliis præcocibus coriaceis glabris longe v. breviter petiolatis, petiolis glabris, late ovatis obtusis integris margine lobulato subdentato v. pinnatomultifidis, scapis crassiusculis ramosis calycibusque patentim pilosis, bracteis radiantibus subulato-lanceolatis, calycis tubo 1–3-pollicari gracili, limbo lobis oblongo-lanceolatis acutis, petalis flavis superioribus longe unguiculatis spathulatis purpureo venosis, cæteris minoribus anguste obovato-spathulatis enerviis, staminibus 5 declinatis.

Pelargonium oblongatum, *E. Meyer in Herb. Drege; Harv. and Sond. Fl. Cap.*, vol. i. p. 263.

A very singular species, belonging to a desert form of the genus, remarkable for the thick erect fleshy root-stock, which stands a few inches above the ground, and bears leaves before the flowers appear. The curious root-stocks of this tribe appear to have the power of throwing off thick layers of the outer bark from the upper part. The calyx-tube is much longer than the limb, and being very slender and adnate to the slender pedicel to its base, it is apt to escape observation. The length and comparative breadth of the sepals and petals varies much.

P. oblongatum is a native of the dry district of Namaqua-Land, where it was discovered by Burchell in 1814, and afterwards gathered by Drege, in whose collection it was named by E. Meyer, but not described till taken up by Harvey in the Flora Capensis in 1860. A plant of it flowered with Mr. Wilson Saunders, at Reigate, in July of the present year, which was sent from Namaqua-Land by Mr. W. S. Rucker;

that here figured flowered with the late Walter Beck of Isleworth, a zealous and accomplished horticulturist and most estimable man, whose recent decease is mourned by a large circle of naturalists. In both cases the leaves appeared some weeks before the flowers.

Descr. *Root-stock* the size of a small carrot, base buried, erect, rich brown in colour, with flaking bark, crowned with a whorl of lanceolate-subulate spreading stipules a quarter to half an inch long. *Leaves* glabrous, fleshy, on long or short petioles, broadly ovate, obtuse or subacute, pale green, paler below, margins lobulate and obscurely irregularly toothed, sometimes multifid; petiole long or short. *Scapes* one or two, dichotomously branched, three to six inches high, rather stout, and as well as the calyces clothed with scattered very fine spreading soft hairs. *Bracts* like the stipules, spreading and whorled at the joints and base of the peduncles. *Flowers* umbelled, numerous, one and a half to two inches in diameter, pale yellow. *Calyx-tube* and pedicel together one to three inches long, very slender, strict, hairy; lobes half to three-quarters of a inch long, lanceolate-oblong, acuminate. *Petals* widely spreading; two upper spathulate, retuse, long-clawed, with purple veins; three others smaller, narrow, without veins. *Stamens* five, declinate; anther orange.—*J. D. H.*

W Fitch del et lith

Vincent Brooks Day & Son Imp

Tab. 5997.

CHRYSANTHEMUM (Pyrethrum) Mawii.

Native of the Greater Atlas.

Nat. Ord. Compositæ.—Tribe Anthemideæ.

Genus Chrysanthemum, *L.*; (*Benth. and Hook. f. Gen. Pl.*, vol. ii. *incl.*).

Chrysanthemum (Pyrethrum) *Mawii;* perenne, gracile, laxe tomentellum ramosum, ramis erectis teretibus subflexuosis apice nudis 1-cephalis, foliis sparsis ambitu ellipticis v. rhombeis triangulari-ovatis pinnatifidis, segmentis angustis incisis acutis, summis linearibus integerrimis, capitulis 1–1½ poll. diam., involucri hemispherici squamis omnibus consimilibus lineari-oblongis acutis tenuiter marginatis viridibus ecarinatis, floribus radii ad 20 subbiseriatis, ligula late lineari-oblonga tridentata extus rosea intus alba, floribus disci brunneis, pappo in membranam unilateralem obtusam basi tubulosam tubum flosculi subæquantem v. superantem producto, acheniis teretiusculis glabris sulcatis costatis.

A very singular half-shrubby species of the Pyrethrum section of *Chrysanthemum*, but referable to no known subsection of that extensive group, though in certain respects allied to *C. Myconis* (*Myconia Chrysanthemum*) of the Mediterranean region, a yellow flowered species with achenes and pappus different in the ray- and disk-flowers. Amongst the Canarian forms where it might have been expected that the allies of the Maroccan should be found, there are none referable to the same sub-section as this, which may be called *Scaphopappus*, in allusion to the auriculate pappus, and be characterized by the costate achenes and auriculate very large pappus, being similar in the ray- and disk-flowers, and by the white, or pink, or purplish ligules, and the brown disk flowers. Several other closely allied species to this inhabit the higher ranges of the Atlas at 6–10,000 feet elevation, none of which are described.

Chrysanthemum Mawii is a native of the lower range of the

Greater Atlas, south of the city of Marocco, where it was discovered by Messrs. Maw, Ball, and myself, in May, 1871, on dry rocky places near Mouli Ibrahim, at 4-5000 feet elevation in the Reraia valley. The specimen here figured was flowered from roots brought by Mr. Maw, and grown in his garden at Broseley. They flowered August of the present year. A smaller and more slender variety of it occurs commonly at elevations of 5-6000 feet on the Atlas.

Descr. *Root-stock* woody, branched; branches ascending, twelve to eighteen inches high, sparingly divided, terete, rigid, naked at the top and terminated by a solitary head, clothed sparsely, as are the leaves, with soft lax rather woolly hairs. *Leaves* scattered, about an inch long, variable in outline, from almost triangular to oblong, pinnatifid to the base, into three or more variable slender incised lobes; uppermost linear, quite entire. *Head* about one to one and a half inches in diameter, solitary, rather long-peduncled; peduncle gradually swelling upwards. *Involucre* hemispherical, scales numerous, all similar, imbricate, linear-oblong, acute, green, with very narrow scarious borders. *Ray-flowers* about twenty, sub-2-seriate, tube short; ligule broad linear-oblong, obtusely 3-toothed, white, rose-coloured at the back. *Disk-flowers* brown, tubular. *Pappus* alike in the ray and disk, tubular at the base, produced into a unilateral concave oblong obtuse or erose-tipped hyaline auricle, exceeding the tube of the ray-flower and equalling that of the disk-flower. *Achene* of ray and disk similar, cylindric-oblong, strongly ribbed.—*J. D. H.*

Fig. 1, Ray-flower; 2, disk-flower; 3, stigma of ray-flower:—*all magnified.*

W. Fitch, del. et lith

Vincent Brooks Day & Son lith

Tab. 5998.

BROWNEA Birschellii.

Native of La Guayra.

Nat. Ord. Leguminosæ.—Tribe Amherstieæ.

Genus Brownea, *Jacq.*; (*Benth. and Hook. f. Gen. Pl.*, vol. i. p. 577).

Brownea *Birschellii*; glaberrima, foliolis 4-jugis obovato- v. elliptico-lanceolatis abrupte caudato-acuminatis infimis ovato-oblongis basi rotundatis cordatisve, floribus racemosis, racemis foliolis 2 sessilibus ovato-cordatis stipatis, rachi brevi, bracteis caducis, pedicellis floribusque roseis, bracteolis in spatham anguste infundibuliformem apice fissam calycem involucrantem connatis, calycis tubo elongato cylindraceo 1½–2-pollicari, segmentis anguste spathulatis obtusiusculis, petalis calycis segmentis duplo longioribus obovato-spathulatis acutis subæqualibus, filamentis in tubum elongatum cylindraceum connatis superne breviter liberis alternis brevioribus, antheris 10 corollam non superantibus, ovario apicem versus tubi calycis affixo breviter stipitato pubescente, stylo filiformi stricto.

Of this plant I know nothing further, than that it is identical with one collected by Mr. Birschel (formerly a young gardener at Kew) in Caraccas, whither he had been sent as a botanical collector in 1854; and that it closely resembles a species from the Pacific sea-coast of New Grenada, at Esmeraldes, collected by Colonel Hall, and preserved in the Hookerian Herbarium. In his notes accompanying the specimen, Mr. Birschel describes it as a tree twenty feet high, very common on the Quebrada del Rio de La Guayra and Quebrada de los Hermanos, flowering in April. In all probability the specimen, from which the accompanying figure was taken, was sent by Mr. Birschel, who contributed many valuable plants to this establishment. It is now about ten feet high, and flowered for the first time in July of the present year. It was named *B. racemosa*, Jacquin, by M. Triana, and may be the species described under that name by Kunth, in the "Nova Genera

et Species Plantarum" of Humboldt and Bonpland (vol. vi. 312), but differs from Jacquin's (a native of the same country) in the more copious inflorescence, much larger leaflets, longer pedicels and flowers, glabrous bracteoles and calyx, and other characters. It is remarkable that so conspicuous a species, and coming from so well-known a country, should be hitherto undescribed. I have named it after its very intelligent and active discoverer, who well merits being associated by name with so handsome a plant.

Descr. Small glabrous tree, with terete glabrous extremities. *Leaves* equally pinnate; rachis four to six inches long, slender, subterete; leaflets in three or four pairs, upper larger, broadly oblanceolate, abruptly acuminate, narrowed to the base, about six inches long; lowest pair ovate-lanceolate acuminate, three to four inches long, all shortly petiolulate. *Racemes* terminal, subsessile, drooping, half a foot long, many-flowered; bracts and flowers deep rose-coloured, or calyx scarlet on first emerging from the bract. *Pedicels* slender, minutely puberulous, one half to three-quarters of an inch long. *Bracteoles* connate in a tubular 2-lobed involucre sheathing the calyx-tube, one to two inches long. *Calyx* with a narrow cylindrical tube equalling the involucre; limb 5-fid, lobes oblanceolate-linear, sheathing the corolla, with the tube two to three inches in length. *Petals* five, oblanceolate or spathulate, gradually narrowed into a long claw, considerably exceeding the calyx, varying to two and a half inches in length. *Stamens* ten, monadelphous, alternately shorter. *Ovary*, narrow, puberulous, tapering into the long style; gynophore adnate to the calyx-tube.—*J. D. H.*

Fig. 1, Flower, the calyx-lobes and petals removed; 2, pistil:—*both magnified.*

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Tab. 5999.

DIGITALIS lævigata.

Native of Austria and Greece.

Nat. Ord. Scrophulariaceæ.—Tribe Digitaleæ.

Genus Digitalis, *Linn.*; (*Benth. in DC. Prodr.*, vol. x. p. 449).

Digitalis *lævigata*; perennis, glaberrima foliis radicalibus oblongo- v. obovato-lanceolatis, caulinis oblongo- v. obovato-lanceolatis integerrimis v. serrulatis, racemo elongato laxifloro, bracteis inferioribus foliaceis, calycis segmentis late oblongis acutis dimidium tubi corollæ æquantibus, v. brevioribus, corolla glaberrima aurantiaca, tubo superne ventricoso, labio superiore brevi recurvo 2-fido lobis rotundatis, inferioris lobis lateralibus brevibus obtusis intermedio adscendente porrecto multo longiore concavo obtuso pallide flavo, intus piloso et venoso, venis aurantiacis.

Digitalis lævigata, *Waldst. and Kit. Pl. Rar. Hung.*, vol. ii. p. 171, t. 158; *Lindl. Monog. Digit.*, t. 10; *Reichb. Iconog. Crit.*, t. 155; *Ic. Fl. Germ.*, vol. xx. t. 1692; *Benth. in DC. Prodr.*, vol. x. p. 450.

A very rare European plant, hitherto found only in Croatia, on Mount Taygetus in the Morea, and a few other places in Greece; though long lost to the country, it was formerly cultivated in England and is exceedingly well-figured in Lindley's monograph of the genus *Digitalis* from a specimen which flowered at Kew.

The plant here figured was sent me by the Rev. M. J. Berkeley, who raised it from seeds sent from near Fiume by Mrs. W. Smith (*née* Glennie), and which flowered in August of the present year. It is a very handsome plant, two to three feet in height, and would make an admirable rock-work ornament. It grows on dry limestone rocks in its own country.

Descr. An erect, wholly glabrous perennial, two feet or more in height. Radical *leaves*, often withered at flowering,

oblanceolate or obovate-oblong, gradually narrowed into a long winged petiole, varying to one foot in length. Cauline leaves linear or narrow-oblanceolate acute, entire or nearly so. *Raceme* erect, simple or branched at base, many-flowered, varying to one foot or more in length; bracts herbaceous, linear, the lower exceeding the flowers. *Calyx-lobes* linear-lanceolate, acute, subequal. *Corolla* orange-yellow, about one inch long, lower lip much larger than the upper, concave, ascending, pale and orange-streaked within.—*J. D. H.*

Fig. 1, Calyx and pistil; 2, corolla laid open:—*both enlarged.*

W Fitch del et lith

Vincent Brooks Day & Son Imp

Tab. 6000.

CROCUS Salzmanni.

Native of Marocco.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Crocus, *Tourn.*; (*Klatt in Linnæa*, vol. xxxiv. p. 647).

Crocus *Salzmanni*; bulbi tunicis extrafoliaceis exterioribus basi in annulum persistentibus, interiore basi demum in fibras liberas soluto, petiolo inferiore longe infra medium tuber affixo, foliis synanthiis margine costaque lævissimis, spatha unica, perigonii fauce pilosa albida, tubo elongato, laciniis elliptico-oblongis acutis pallide violaceis striatis, stigmatibus erectis multifidis antheras superantibus, filamentis glabris.

Crocus Salzmanni, *Gay in Ferussac Bull. Sc. Nat.*, vol. xv. p. 220.

C. tingitanus, *Herbert in Bot. Mag. sub. t.* 3868.

An autumn and winter-flowering Crocus, belonging to the same section of the genus with the Portuguese *C. serotinus*, Salisb. (Tab. nost. 1276), and so near to it specifically, that I doubt its proving more than a variety of that plant; its principal distinctions from Klatt's characters of *serotinus*, lie in the margins and midrib of the leaf being perfectly smooth, in the fibrous coats of the bulb not being strongly reticulate, and in the pale yellow blotch at the throat of the perianth being scarcely apparent. These are, however, all of them very variable, and indeed obscure characters; the amount of reticulation of the coats of the bulb is an inconstant one; in Gay's beautiful unpublished drawings of *C. serotinus* in my possession, a cross section of the leaf as magnified shows no scabridity, nor do I find any in authentic specimens of *serotinus*; lastly, the yellow spot at the base of the outer perianth-segments of *C. serotinus*, though described by Klatt, is not visible in the Botanical Magazine figure, or in Gay's drawings. Gay's character, drawn from the insertion of leaf on the tuber, is a most obscure one. *C. Clusii*, Gay, is another form

of *C. serotinus*, also from Portugal, distinguished by its author by the white throat of the perianth, and the lower insertion of the petiole. It should be observed that both *C. Clusii* and *C. Salzmanni* are omitted in Klatt's monograph; and that the figure of *C. serotinus* in the Botanical Magazine represents the tuber deprived of its coats. All three are probably western forms of *C. longiflorus*, Raf., an Italian species that extends into Sicily and Dalmatia. *Crocus Salzmanni* is a native of clayey fields about Tangiers, flowering in November and December. The bulbs, which I brought from Tangiers in 1870, flowered in October, and were in full leaf in the following January.

Descr. *Bulb* ovoid, with the outer tunics at first uniform and unbroken, finally splitting up to some extent into vertical fibres, the outer ones persistent in a basal ring. *Lower-leaf* inserted below the middle of the bulb; *leaves* half-developed at the same time as the flower, quite smooth on the edges and midrib. *Spathe* solitary. *Perianth* pale violet with a long tube; the divisions oblong-spathulate, sub-acute, whitish and pilose at the throat. *Stigmas* orange-yellow, overtopping the anthers, multifid, but the divisions contiguous and much fewer than in *C. nudiflorus* and *C. speciosus*. *Filaments* glabrous.—*J. D. H.*

Fig. 1, Transverse section of a leaf; 2, stigmas:—*magnified.*

W Fitch del et lith

Vincent Brooks Day & Son, Imp

Tab. 6001.

MESOSPINIDIUM VULCANICUM.

Native of Eastern Peru.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Mesospinidium, *Rchb. f.*; (*Walp. Ann.*, vol. vi. t. 856).

Mesospinidium *vulcanicum;* pseudobulbo ovoideo v. obpyriforme compresso ancipiti marginibus subacutis, foliis radicalibus petiolis late vaginantibus, lamina parva v. evoluta oblonga, caulinis ad apicem pseudo-bulbi geminis, late ligulatis carinatis subacutis, pedunculo gracili elongato, bracteis parvis sparsis vaginantibus acutis, floralibus pedicellis gracilibus roseis multo brevioribus, racemo inclinato, multi-laxifloro, floribus roseis, sepalis petalisque consimilibus oblongo-lanceolatis acuminatis, mento brevissimo, labelli 3-lobi ungue et disci basi columnæ adnatis, lobis lateralibus obtusis decurvis erosis, intermedio deflexo breviter late unguiculato subrotundato, marginibus decurvis subcrenatis, disco callo 4-carinato, carinis puberulis 2 intermediis longioribus, **columna apice dentata.**

Mesospinidium vulcanicum, *Rchb. f. in Gard. Chron.* 1872, p. 393.

A charming little Orchid, with the habit and appearance of an *Epidendrum*, but with very different pollen-structure. It appears to be undoubtedly the same with a plant in the Hookerian Herbarium, discovered by Mr. Spruce in the volcanic mountains of the Tunguragua district of the Upper Amazons, where it was flowering in April, 1860; and which was named *M. vulcanicum* by Dr. Reichenbach himself. That learned author's description in the *Gardeners' Chronicle*, quoted above, is probably drawn up from imperfect or faded specimens, as the flowers are described as purplish, whereas they are in our specimen of a vivid rose-red, as described by Spruce—"Flores speciosi, rubri roseive,"—as also in the shape of the mid-lobe of the lip, which is not linear and 3-toothed, but rounded, 2-lobed, and broadly clawed. I am indebted to Messrs.

November 1st, 1872.

Veitch for the specimen here figured, which flowered in autumn of the present year.

Descr. *Pseudo-bulb* ovoid or obpyriform, compressed, and more or less two-edged, one and a half to two inches long, about one inch broad. *Leaves* oblong or broadly linear, carinate, at least below, rather obtuse, three to five inches long, one-half to three-quarters of an inch broad. *Raceme* 8–10-flowered, unilateral on a slender erect peduncle, one-half to one foot long, closely sheathed by several scarious empty bracts; upper bracts ovate-lanceolate, conduplicate, half as long as the ovary. *Sepals* subequal, divergent, narrow-oval acute, the two lower united at the base in a minute mentum, deep rose or crimson. *Petals* equalling the sepals, and similar in form and colour, divergent. *Labellum* three-lobed, lateral lobes rotundate; median larger, emarginate, denticulate, crimson excepting the pale or white 4-ridged disk, and yellowish base of the lateral lobes. *Column* white at apex.—*J. D. H.*

Fig. 1, Column and labellum; 2, labellum, front view:—*both magnified.*

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Tab. 6002.

SARCOSTEMMA Brunonianum.

Native of the Peninsula of India.

Nat. Ord. Asclepiadeæ.—Tribe, Asclepiadeæ veræ.

Genus Sarcostemma, *R. Br.*; (*Dcne. in DC. Prodr.*, vol. viii. p. 537.)

Sarcostemma *Brunonianum*; volubile v. dependens, caulibus gracilibus cylindraceis glabris, fasciculis florum lateralibus, pedicellis calycibusque cano-pubescentibus, calycis lobis triangulari-ovatis acutis, corollæ laciniis ovato-oblongis obtusis glabris, corona staminea exteriore subplicata 10-crenata, interiore antheris breviore, stigmate apiculato subintegro.

Sarcostemma Brunonianum, *Wight et Arn. Contrib.*, p. 59; *Wight Ic.* t. 1282; *Dcne. in DC. Prodr.*, vol. viii. p. 537.

This very singular plant is a native of Ceylon, and is also common in arid jungles of the Madras Presidency, where it forms great masses, climbing over shrubs, tree-trunks and stones, abounding in an acid milky juice, and hence eaten by the natives as a salad, and sucked by travellers to allay thirst, thus forming a remarkable exception to the usually poisonous nature of the Asclepiadeous juices. Unfortunately it frequents the jungles in which the poisonous and acrid *Euphorbia Turiculli* grows, and indeed it often spreads over that plant, whose leafless branches so closely resemble those of the *Sarcostemma*, that if care is not used one may be mistaken for the other, the consequences of which might be serious. Of a very closely allied species a curious use is made; bundles of its branches are cast into the wells from which sugar-cane fields are watered, together with a bag of salt, the result of which is that the white ant is expelled from the field.

Sarcostemma Brunonianum grows freely in a pot in a warm greenhouse, where its branches hang down in masses

several feet long, and when covered with the deliciously sweet-scented white blossoms, have a very elegant appearance. The specimen here figured flowered in the Cactus House at Kew, in July of the present year.

Descr. Branches leafless, long, slender, glabrous, about the thickness of a goose-quill, remotely forking, pendulous or loosely climbing. *Flowers* greenish-yellow, one-third of an inch in diameter, in close 8–12-flowered sessile lateral umbels. *Pedicels* equalling or exceeding the flower, hoary-pubescent. *Calyx* very small acutely 5-toothed. *Corolla* rotate, lobes ovate-oblong glabrous. Outer *corona* 10-crenate, inner of five fleshy erect segments shorter than the anthers. *Stigma* obtusely apiculate.—*J. D. H.*

Fig. 1, Reduced view showing general habit of the plant; 2, flowering branch :—*nat. size ;* 3, flower ; 4, gynostegium and corona ; 5, pollen masses : —*magnified.*

W. Fitch del et lith.

Vincent Brooks Imp.

Tab. 6003.

BATEMANIA Burtii.

Native of Costa Rica.

Nat. Ord. Orchideæ.—Tribe Dendrobieæ § Maxillarieæ.

Genus Batemania, *Lindl.*; (*Bot. Register*, tab. 1714).

Batemania *Burtii*; subacaulis, foliis sessilibus elongato elliptico-oblongis acutis basi subdistiche imbricatis planiusculis carinatis nervis obscuris, pedunculis unifloris robustis suberectis, bracteis vaginatis viridibus appressis obtusis, floribus amplis 3 poll. diam., sepalis petalisque consimilibus late ovatis acuminatis rufo-brunneis maculis ochreis rotundatis, petalis basi purpureo pictis, labelli ungue auricula transversa 2-loba fimbriata aucto, lamina trulliformi apiculata, basi subcordata, ultra medium rubro-fusca maculis saturatioribus conspersa, columna cucullata, alis marginibusque erosis.

Batemania Burtii, *Endres & Reichb. f. in Gard. Chron.* 1872, p. 1099.

The genus *Batemania*, named by Lindley in 1835 after the distinguished orchidologist James Bateman, F.H.S., consists of half-a-dozen species of tropical Eastern, South American, and Spanish-Main plants, as enumerated by Reichenbach in the sixth volume of Walper's "Annales." Some of these had been long known, but previously referred in books or collections, some to *Huntleya*, some to *Zygopetalum*, and some to *Galeottia*. The species here figured is a native of Costa Rica, where it was discovered by M. Endres in 1867, and is regarded by Reichenbach as very closely allied to *B. meleagris*, Rchb. f. (Bonplandia, vol. iii. p. 217), a native of Brazil, but differing in the colour of the flower and form of the curious ciliated appendage on the claw of the lip. It is a magnificent Orchid, whether as regards the luxuriance of the foliage or the form and colour of the flower. I am indebted to Messrs. Veitch for the opportunity of figuring it; their specimen was procured through W. Burnley Hume, Esq.; it flowered in August of the present year.

December 1st, 1872.

Descr.—*Stem* none (pseudo-bulbs may form later, as in the case of *B. Colleyi*, Bot. Reg. t. 1714). *Leaves* all radical, nearly distichous, narrowly elliptic-oblong, acute, eight to fourteen inches long, by one and a half to two inches broad, bright green, nerves faint. *Flowers* three inches broad; peduncles radical, stout, cylindric, erect, with several appressed green obtuse sheathing bracts. *Ovary* straight, one inch long, deeply grooved. *Sepals* and *petals* nearly equal, spreading, broadly elliptic-ovate, acute, fleshy, undulate, rich red-brown, with yellow rounded spots and yellow bases; the petals rather the shortest and broadest, and having dark purple confluent streaks above the base. *Lip* white, except the distal half of the blade, which is dull brownish purple, with darker spots; claw white, with a transverse, semilunar, 2-lobed, white auricle, that is cut into slender incurved purple setiform teeth. *Column* hooded, white, tip green, dorsally keeled, margins and narrow wings jagged.—*J. D. H.*

W Fitch del et lith

Tab. 6004.

SALVIA dichroa.

Native of the Greater Atlas.

Nat. Ord. Labiatæ.—Tribe Monardeæ.

Genus Salvia, *Linn.*; (*Benth. in DC. Prodr.*, vol. xii. p. 262).

Salvia (Plethiosphace) *dichroa;* glanduloso-pubescens, caule erecto 4-gono angulis incrassatis pilosis, foliis sinuato-crenatis inferioribus petiolatis ovato-oblongis obtusis pilosis, caulinis sessilibus oblongis obtusis, supremis seu floralibus parvis ovatis acuminatis, racemis simplicibus, rachi robusto, verticillastris paucifloris, floribus pedicellatis, calycibus obovato-campanulatis glandulosis, labio superiore 3-dentato dente medio minore, inferiore 2-fido lobis triangulari-subulatis porrectis, corolla calyce triplo longiore, tubo glabro non inflato intus annulo piloso instructo, labio superiore elongato compresso obtuso pubescente inferiore superiori subæquilongo 3-lobo, lobo intermedio suborbiculari pendulo albo, lateralibus decurvis brevibus, connectivis elongatis antice breviter porrectis apicibus tumidis, cohærentibus.

A near ally of *Salvia bicolor*, Desf. (Tab. nost. 1774) and *S. algeriensis*, Desf., the former a native of Northern Marocco, and the latter of Algiers; but very distinct from both in the form of the leaves, and from the latter in the much greater size of the lower lip, which, as in *S. bicolor*, nearly equals the upper. Of the two it is very much nearest to *S. bicolor*, and but for the very different form of the radical leaves, and the nature of their lobing, I should have been disposed to regard it as a variety of that plant; the radical and lower leaves of *S. bicolor* are deeply cordate sinuate-toothed and much cut, the teeth and lobes spreading; the analogous leaves on *S. dichroa* are oblong, acute at the base, and irregularly cut at the margin into large obtuse lobules that point towards the apex of the leaf. In the description of *S. bicolor* under Tab. 1774, it is stated that the under-lip, which at its first expansion is snow-white, almost immediately

begins to fade to rusty-brown, a change I have not observed in this species, but which may occur.

Roots and leaves of this plant were collected by Mr. Maw at the base of the Greater Atlas, south of the city of Marocco, at about 2000 feet elevation below Tasmeroot, in May 1871, which flowered in his garden, at Broseley, in August of the present year. It is an exceedingly handsome species, the colours much resembling those of *Collinsia verna*.

Descr. *Stem* two to three feet high, erect, quadrangular, with obtuse thickened yellowish angles, that are clothed with reverted hairs. *Leaves*, radical petioled, six to eight inches long, oblong-ovate or ovate-lanceolate obtuse, narrowed into the petiole, obtusely and very irregular sinuate-serrate with rounded lobules, pubescent, lower cauline short-petioled; upper sessile, oblong or elliptic-oblong; floral ovate, long acuminate, reflexed. *Raceme* a foot long and more, stout, obtuse, many-flowered; false-whorls of two opposite fascicles of two to three pedicelled flowers, pedicels erect, half an inch long. *Calyx* three-quarters of an inch long, subcampanulate, 2-lipped to the middle, glandular-pubescent, strongly ribbed, green; upper lip with three small teeth, the mid one smallest; lower with two subulate lanceolate straight teeth. *Corolla* one and a quarter inches long; upper lip bright blue, obtuse, arcuate, oblong, much laterally compressed, pubescent; lower lip as long as the upper, 3-lobed, lateral lobes pale blue, oblong, recurved; mid-lobe orbicular, concave, white, pendulous. *Connectives* very long, lower arm short projecting forward, irregularly capitate and lobed.—*J. D. H.*

Fig. 1, Radical leaf, of the natural size; 2, calyx; 3, anthers; 4, disk and ovary:—*all magnified.*

Vincent Brooks Day & Son, Imp

Tab. 6005.

LILIUM CONCOLOR, VAR. SINICUM.

Native of China.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Lilium, *Linn.*; (*Baker in Gard. Chron.*, 1871).

Lilium (Isolirion) *concolor;* caule $\frac{1}{2}$–3-pedali apicem versus paucifloro subpubescente, foliis sparsis supremis subverticillatis anguste oblongo-lanceolatis subacutis margine erosis subtus puberulis, floribus subcorymbosis ad 3 poll. diam. miniato-rubris concoloribus v. punctis luridis conspersis, perianthii basi campanulati foliolis patentibus $\frac{1}{2}$–$\frac{3}{4}$ poll. latis basin versus medio sulco pubescente exsculpto epappillosis, filamentis pollicaribus et ultra, antheris $\frac{1}{3}$-pollicaribus, polline rubro, ovario anguste clavato infra apicem intrusum contracto profunde 3-sulcato, stylo brevi stigmateque crasso 3-lobo rubris.

Lilium concolor, *Salisb. Hort. Parad.* t. 47; *Bot. Mag.* t. 1165; *Ait. Hort. Kew.* Ed. 2, vol. ii. p. 241; *Kunth, Enum.* vol. iv. p. 259 et 673; *Koch, Wochenschrift,* 1870; *Baker in Gard. Chron.* 1871, p. 1034; *Duchartre, Obs. sur le genre Lis,* p. 125.

Var. sinicum; perianthii foliolis erecto-patentibus vix recurvis, pedunculis longioribus. L. sinicum, *Lindl. in Part. Fl. Gard.* vol. ii. *Misc.* p. 115, t. 193; *Lemaire Ill. Hort.* t. 100; *Van Houtte, Flore des Serres,* t. 1206.

Though maintained as a species by Koch in his valuable revision of the genus *Lilium*, quoted above, and apparently by Duchartre also in his admirable observations on the genus, I think that no one can compare *Lilium concolor* and *sinicum*, whether by figures or as specimens, without becoming convinced that Lindley's original suspicions were grounded, and that Mr. Baker is right in regarding them as specifically identical; though they may perhaps be permanently distinguishable as varieties or forms. Not only do they come from the same country, but both are known only in cultivation, both vary with spotted and spotless flowers; and the only difference of consequence between them is, that

the perianth segments of *L. sinicum* are less revolute than those of *L. concolor.*

The original *L. sinicum* was introduced into England early in the century (1806), from China, and is described as scentless, but very ornamental; the var. *sinicum*, which Mr. Baker does not consider to be entitled to rank even as a variety (in which I am almost disposed to agree), was imported also from China in 1850 by Mr. Fortune, though not for the first time; it having been introduced by the Horticultural Society as early as 1824. The specimen here figured was communicated by Messrs. Osborne and Sons, with whom it flowered in June of the present year. It varies very much in stature, and we are informed that a very pretty small variety, about six inches high, has been exhibited by Mr. Bull at the Horticultural Society.

Descr. *Bulb* scaly. *Stem* erect, one-half to three feet high, green, covered with a slight sub-cottony pubescence, as are the undersides of the leaves. *Leaves* scattered, two to four inches long, one-half to three-quarters of an inch broad; narrowly elliptic oblong or lanceolate, sessile, subacute, dark green, faintly nerved, somewhat pubescent beneath. *Flowers* few, subcorymbose towards the top of the stem, about three inches in diameter, scarlet, with or without small blackish spots on the throat. *Perianth-segments* spreading, narrowly ovate-lanceolate, conniving at the base, tips villose at the back and base externally, median line with a pubescent furrow towards the base within. *Filaments* about one inch long, and anthers red. *Ovary* green, deeply three-grooved, subclavate, with three terminal knobs; style short, clavate, and large 3-lobed stigma red.—*J. D. H.*

Fig. 1, Petal; 2, germen:—*both magnified.*

Tab. 6006.

UVARIA Kirkii.

Native of Zanzibar.

Nat. Ord. Anonaceæ.—Tribe Uvarieæ.

Genus Uvaria, *Linn.*; (*Benth. and Hook. f. Gen. Pl.* vol. i. p. 23).

Uvaria *Kirkii*; ramulis foliisque junioribus subtus ferrugineo-pilosis, foliis breviter petiolatis oblongis obtusis v. subacutis basi rotundatis v. cordatis marginibus planis v. undulatis, costa tenui nervisque obscuris subtus demum glabratis, floribus $2\frac{1}{2}$–3 poll. diam. axillaribus solitariis breviter pedicellatis, bractea parva, sepalis ovato-rotundatis infra medium connatis stellato-tomentellis, petalis exterioribus ovato-rotundatis acutis interioribus ellipticis paulo longioribus, staminibus omnibus perfectis, ovariis 10-20, ovulis 10-12 2-seriatis, carpellis maturis $\frac{3}{4}$ poll. longis oblongis 5-6-spermis breviter stipitatis.

Uvaria Kirkii, *Oliver Mss.*

It is seldom that the opportunity occurs in England of figuring plants of the large tropical family of *Anonaceæ* from a living plant, these being for the most part trees or branching shrubs, requiring room, great heat, and moisture; and having little to recommend them to horticulturists, they are banished from the stove in favour of handsome and freer flowering things.

Uvaria Kirkii was discovered by Dr. Kirk, formerly the companion of Livingston during his second expedition into Central Africa, and now H.B.M. Vice-Consul at Zanzibar, from whence he has transmitted many valuable plants to the Royal Gardens, including the singular *Zamioculcas* figured at Tab. 5985 of this volume. About fifteen species of *Uvaria* are known from Africa, and many more from India. The present forms a low shrub of three to four feet high at Quiloa on the Zanzibar coast, with very yellow green foliage, and large dingy yellow flowers. Seeds of it were transmitted to England by Dr. Kirk, in 1868, and the plant here figured flowered in October last.

December 1st, 1872.

Descr. An undershrub, three to four feet high; branchlets and young leaves beneath clothed with ferruginous hairs. *Leaves* one and a half to five inches long, young elliptic-oblong and very rusty beneath, old oblong, obtuse or acute, glabrous beneath, or with scattered hairs on the midrib, apex usually obtuse or rounded, rarely acute, base rounded or minutely cordate, yellow-green and concolorous, midrib slender, nerves diverging distant obscure; petiole very short. *Flowers* three inches in diameter, solitary, axillary and subterminal, very shortly pedicelled; pedicel with a small submedian bract. *Calyx* small, of three broadly triangular-ovate stellate-pubescent sepals united below the middle. *Petals* very large, flat, thin, pubescent, externally pale dirty straw-colour suffused with verdigris green throughout the lower third; three outer broadly ovate-orbicular, acute; inner elliptic, subacute. *Andricœum* small, globose, one-third inch in diameter, pale yellow; anthers uniform, with a small convex or orbicular pubescent connective. *Carpels* about ten to twenty, cylindric, densely pubescent; stigma subsessile, capitate; ovules ten to twelve, 2-seriate. *Ripe carpels* six to eight, about an inch long, cylindric-oblong, apiculate, tomentose, granulate, 3–6-seeded; stipes one-sixth inch long.—*J. D. H.*

Fig. 1, Flower with the petals removed; 2, vertical section of torus; 3, stamen; 4, ovary; 5, ripe carpels; 6, longitudinal section of ripe carpel:—*all but figs.* 5 *and* 6 *magnified.*

W Fitch, del et lith

Vincent Brooks Day & Son. Imp

TAB. 6007.

DENDROBIUM CHRYSOCREPIS.

Native of Moulmein.

Nat. Ord. ORCHIDEÆ.—Tribe DENDROBIEÆ § MALAXIDEÆ.

Genus DENDROBIUM, *Swartz*; (*Lindl. Gen. & Sp. Orchid.* p. 74).

DENDROBIUM *chrysocrepis*; caulibus fasciculatis inferne tenuibus compressis superne dilatatis internodiis $\frac{1}{3}$ poll. latis compressis pauci-foliis, foliis anguste elliptico-lanceolatis acuminatis coriaceo-carnosis, pedunculis ad nodos caulium vetustorum lateralibus 1-floris, bracteis minutis, floribus aureis labello subochraceo, sepalis apiculatis dorsali petalisque consimilibus obovatis, lateralibus oblique ovatis, mento recto obtuso, labello calceiformi villoso apice retuso antice infra orem fisso, ore subquadrato marginibus utrinque lobulatis incurvis, intus pilis crispato-incurvis rubris infra orem onusto, columna brevissima antice villosa.

DENDROBIUM chrysocrepis, *Parish and Reichb. f. mss.*

A very curious species of Dendrobe, discovered by the indefatigable Mr. Parish in Moulmein, and communicated by him to the Royal Gardens in 1871, where it flowered in March of the present year, and was examined by Professor Reichenbach, who has obligingly communicated the following note upon it, together with a diagnosis: "Near *D. euphlebium*, Reichb. f. (Journ. Proc. Linn. Soc., 1859, p. 7), but widely differing in the flattened stem and form of the lip. The remarkable character of the stem developes in this species as much as it does in *D. crassinode* (Tab. nost. 5766), but at a later period. The young stem is homomorphous, with wide leaf-sheaths; as the stem gets older, the upper leaf-bearing internodes flatten, and lateral shoots appear, which root immediately."

DESCR. *Stems* tufted, six to ten inches long, slender, rigidly flexuous, obscurely compressed below, with the internodes an inch long, contracted in the middle, and surmounted by a short truncate brown sheath; above, the stem dilates into a

narrowly elliptic flattened leafy pseudo-bulb two to five inches long, of two or more leafing internodes; this part is green, and attains nearly half an inch in diameter, in this early state it is flowerless. *Leaves* distichous, two to three inches long, narrowly elliptic-lanceolate, acuminate, bright green, rather fleshy, nerves faint. *Flowers* borne upon the old stems, in which the leaves are gone, and their sheaths brown; golden-yellow, with a deeper, more orange-coloured lip, one to one and a half inches in diameter; peduncle very slender, with one or two minute obtuse bracteoles. *Ovary* small and slender. *Dorsal sepal* and *petals* similar, concave, obovate-cuneate, rounded and apiculate at the top; lateral sepals more spreading or reflexed, obliquely ovate. *Lip* pyriform, slipper-shaped, ventricose, velvety with fimbriate flattened processes; mouth oblong, truncate at the distal end, with a fissure extending thence halfway towards the apex; margins of mouth inflexed, lobulate, inner surface below the mouth densely clothed with crisped reddish hairs. *Column* very short, villous below the rostellum.—*J. D. H.*

Fig. 1, Flower; 2, lip; 3, column; 4, pollen:—*all magnified.*

W Fitch, del et lith.

Vincent Brooks Day & Son Imp.

Tab. 6008.

BOWENIA SPECTABILIS; FEMALE PLANT.

Native of Tropical Australia.

Nat. Ord. Cycadeæ.—Tribe Zamieæ.

Genus Bowenia, *Hook.*; (*Bot. Mag.* t. 5398).

Bowenia *spectabilis;* amentis fœmineis masculis multoties majoribus et crassioribus subsessilibus oblongo-globosis apice rotundatis, squamis sub-6-seriatis fere superpositis crassis transverse elongatis hexagonis peltatis vertice depresso rugoso, subtus utrinque 1-ovulatis, ovulo recto ellipsoideo apice mammillato, semina ovoideo-globosa, testa crasse crustacea, albumine duro, embryone albumine circiter triente breviore, radicula in filum contortissimum prælongum tenuissimum contracta, cotyledonibus 2 brevissimis.

Bowenia spectabilis, *Hook. l. c.; F. Müller, Fragm. Phyt. Austral.* vol. v. pp. 171 and 215.

The first account of this most remarkable plant, the only known Cycad with bipinnate fronds, was that given in this work in the year 1863, when the male cone alone was known. Since that period specimens have at various times been received from Mr. Hill, the energetic superintendent of the Brisbane Botanic Garden, and amongst them female plants, of which one flowered at Messrs. Veitch's and another at Kew, during the present year. Unfortunately, no male flowers were procurable at the same time, so that there was no chance of fertilization; the ripe seed has, however, been well described by F. Müller, whose description I find to be correct.

The tuberous stem of *Bowenia* has the property of remaining dormant for years, and resisting all excitements to growth. A small cylindrical specimen, about three inches by about two-thirds of an inch in diameter, received at Kew in the year 1864, and which arrived with a healthy leaf, soon lost it, and remained for four years leafless, making very little root, and developing no bud; it was plunged into strong

bottom heat for months; and again kept moderately cool for as long; it was kept dry at one time and copiously watered at another, but all to no purpose; at last it made a push and produced a fine frond, and subsequently a male cone, with considerable rapidity.

The largest specimen now at Kew has a frond five feet in diameter, with the individual pinnules four inches long; its graceful, glossy foliage is very ornamental, and the plant is remarkably free from the attacks of insects. In some dried specimens there is a strong tendency in the leaflets to become laciniate at the apex. The ripe fruiting cone is very curious, and quite unlike any other Cycadeous fruits which I am acquainted with; it is about the size of a human fist, and consists of about twenty broadly ellipsoid nuts, one inch in long diameter, adhering in pairs to the shrivelled scales, and these to the axis in a very irregular manner, the scales having shrunk so much that the seeds are completely exposed, and point in various directions, seldom retaining their original position which is inwards or towards the axis.

In addition to the habitats already known for this plant, of Endeavour River, where it was discovered by Allan Cunningham, and Rockingham Bay, whence Hill sent it to England, and where it grows in company with *Macrozamia Denisonii*, Mueller enumerates those of bushy hills near the McKay River, and the summit of Mount McAllister; he further observes that it differs from *Encephalartos* only in the compound leaves, and he reduces *Encephalartos* itself to a subgenus of *Zamia*.—*J. D. H.*

Fig. 1, Reduced view of female plant; 2, base of the same and female cone of the natural size; 3, 4, and 5, views of an ovuliferous scale:—*slightly magnified.*

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